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JOURNAL

OF THE

American Veterinary Medical Association

FORMERLY AMERICAN VETERINARY REVIEW

(Original Official Organ U. S. Vet. Med. Ass'n.)

H. Preston Hoskins, Secretary-Editor, 716 Book Building, Detroit, Mich.

JOHN W. ADAMS, President, Philadelphia. Pa. M. JACOB, Treasurer, Knoxville, Tenn.

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Vol. LXVII, N. S. Vol. 20 September, 1925 No. 6

PORTLAND MAKES GOOD

Any of the faithful four hundred who attended the sixty-second annual meeting of the American Veterinary Medical Association, in Portland, Oregon, will be glad to testify that the Pacific Northwest knows how to entertain. Those who had any misgivings, but went to see for themselves, had them dispelled soon after arrival in the Rose City.

Delightful weather, an interesting and well-balanced program, convenient accomodations and genuine goodfellowship throughout, all added to the carefully made and executed plans of the local veterinarians, contributed to make the Portland meeting one long to be remembered.

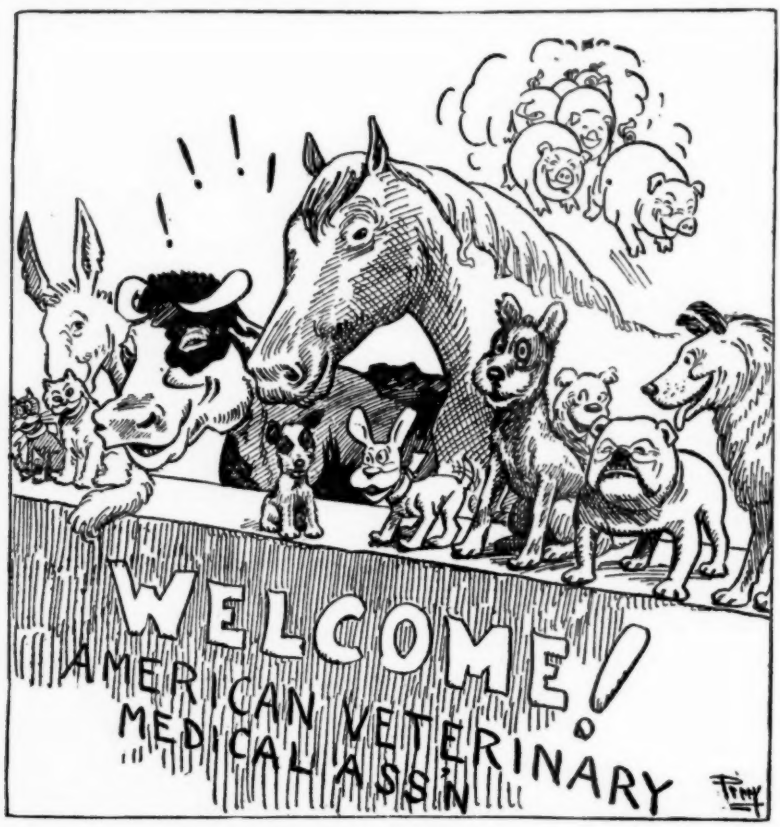
The program was followed practically without a deviation. In this respect the meeting was a notable one. The sessions started promptly with but one exception—Friday morning. There were no protracted debates to prolong the business sessions. Reports of committees were on hand when called for, without a single exception. One of the most noticeable improvements in the business sessions was the omission of the arduous reading of a long list of applicants for membership, the result of these being handled under the new system approved at Des Moines and put in operation the past year.

The election of officers was a most peaceable event. The presidency went to Dr. John W. Adams, of Philadelphia, without any opposition. The vice-presidencies were well distributed, as usual:

First vice-president, Dr. E. E. Wegner, Pullman, Wash.
Second vice-president, Dr. E. A. Watson, Ottawa, Canada.
Third vice-president, Dr. P. H. Browning, Honolulu, Hawaii.
Fourth vice-president, Dr. Otto Faust, Poughkeepsie, N. Y.
Fifth vice-president, Lt. Col. Walter Fraser, U. S. Army.

Thus it will be seen that the Association recognized the college man, the laboratory worker, the control official, the practitioner, and the army veterinarian.

Dr. M. Jacob, of Knoxville, Tennessee, was re-elected treasurer as usual. As some one said, "I'd like to see anyone take the office away from him." The Executive Board recommended



THEIR FRIENDS ARE IN THE CITY

Cartoon in the *Portland Telegram* during the convention.

the present incumbent for secretary-editor for the ensuing year and the Association approved.

Lexington, Kentucky, was selected for the 1926 meeting place. Dr. W. W. Dimock made such a fervid appeal for the South that opposition melted away like snow before the sun. However, Dr. Dimock made some promises that we will expect him to fulfill, and right here we make the prediction that Lexington will see one of the largest gatherings of veterinarians ever assembled in America. There are 845 members of the A. V. M. A. in Kentucky and the states adjoining. There are probably one thousand veterinarians in these states who are not members. It will be the first meeting in the United States, east of the Mississippi River, since 1920, when we met in Columbus. Members in this territory, who have complained of the meetings being held "too far away," will have their chance next year. *Plan now for Lexington!*

The new Section on Small Animal Practice was launched under most auspicious circumstances. It proved to be the drawing card of the sectional meetings. The defections from the Section on General Practice caused some alarm. This section usually has been the best attended. This year it was the poorest. This is easily explained, however, when it is considered that a majority of the practitioners in attendance were small animal specialists. Even some general practitioners deserted their section to profit by the unusual literary and clinical treat offered by the small animal men.

Elections of officers in the various sections resulted as follows:

General Practice

Chairman:—Dr. E. .R Steel, Grundy Center, Iowa.
Secretary:—Dr. J. N. Frost, Ithaca, N. Y.

Sanitary Science and Police

Chairman:—Dr. N. F. Williams, Fort Worth, Texas.
Secretary:—Dr. Edw. A. Cahill, Indianapolis, Ind.

Education and Research

Chairman:—Dr. E. T. Hallman, East Lansing, Mich.
Secretary:—Dr. E. M. Pickens, College Park, Md.

Small Animal Practice

Chairman:—Dr. J. C. Flynn, Kansas City, Mo.
Secretary:—Dr. Harry W. Brown, Portland, Ore.

Honorary membership was conferred upon Hon. W. M.

Jardine, Secretary of Agriculture; Dr. John George Heribert Vennerholm, president of the veterinary college at Stockholm, Sweden; and Dr. John A. Kolmer, Professor of Pathology and Bacteriology in the Graduate School of Medicine of the University of Pennsylvania.

The social features of the week were interspersed with the business and literary sessions in such a way as to produce just the right atmosphere. The alumni meetings Tuesday evening were well attended and were followed by the President's reception and dance. Wednesday evening the general session really started at 7 o'clock, when Dr. W. J. Embree, of Chicago, got under way with a number of new and very interesting moving picture films.

Thursday afternoon all took the automobile ride up the Columbia River Highway—a very enjoyable outing. The banquet was held that evening. The toast list, with fifteen numbers, made some think that Montreal was going to be repeated, but such proved not to be the case. With the exception of Dr. Dimock's dissertation, "The Blue Grass Country," which he seemed to think extended all the way from Iowa to Kentucky, and east as far as Connecticut, the speakers were unusually charitable towards their audience. One reason why the speeches

Cartoon in the *Morning Oregonian* during the Portland meeting. Prominent veterinarians sketched from life by Jeff Tester.

were so easy to take was the fact that they were interrupted frequently with restful selections from an indulgent orchestra.

We take this occasion again to thank the veterinarians of the Pacific Northwest for inviting us to meet with them in Portland and for the splendid entertainment they gave us. We hope that the Association will not wait another sixty-three years before going to the Rose City again.

OUR NEW PRESIDENT

For the first time in our recollection—perhaps the first time in the history of the Association—a member who was not in attendance at the meeting was honored with the presidency of the American Veterinary Medical Association. This signal honor goes to Dr. John William Adams, of Philadelphia.

In the rather shop-worn phraseology of the toastmaster, the subject of this brief biographical sketch "needs no introduction," at least to the veterinary profession of America. His teachings have been carried to the four corners of the world by the hundreds of students whose privilege it has been to sit in his classes. There are comparatively few veterinarians in America today who have not heard Dr. Adams lecture on some phase of surgery, either in the class-room or the clinic, veterinary meeting or conference. His long suit is his natural ability as a teacher, and as such he will always be remembered.

Born at Middleton, Mississippi, November 8, 1862, the son of John Charles and Helen Marr (Doty) Adams, his family moved to Minnesota during the Reconstruction period, in October, 1886. He received his early education in the public and high schools of Lake City, Minn. In 1881 he matriculated in the University of Minnesota, in the classical course, and received the degree of Bachelor of Arts in 1886. While pursuing his studies in the University he taught four years in the Minneapolis evening schools. Following his graduation, he taught Rhetoric and English in the Shattuck Military School, at Faribault, Minnesota, from 1886 to 1889.

Dr. Adams then matriculated in the Veterinary School of the University of Pennsylvania and was graduated in 1892. In the summer of that year, he pursued post-graduate studies at the Royal Veterinary High School of Berlin, Germany. In the fall, he entered the Medical Department of the University of Pennsylvania. In March, 1893, he returned to Germany, and took a

JOHN W. ADAMS, A. B., V. M. D.

President of the American Veterinary Medical Association

1925—1926

semester's work at the Royal Veterinary High School of Saxony, at Dresden, specializing in horseshoeing under Professor Anton Lungwitz. That year he was appointed Assistant Professor of Veterinary Surgery and Obstetrics and Lecturer on Horseshoeing in the University of Pennsylvania, and was promoted to the rank of professor in 1896, which post he still occupies. Times without number he has had offers to leave his Alma Mater, but a sense of loyalty and devotion to the institution has always been uppermost and he has remained at his post. Upon the death of Dr. Leonard Pearson, in 1909, Dr. Adams was offered the deanship of the Veterinary School but declined it. For over twenty years, while a member of the faculty, Dr. Adams conducted a private practice in Philadelphia.

While an undergraduate at Pennsylvania, Dr. Adams was the idol of the college athletic world. He played center on one of the best foot-ball teams the Red and Blue ever had on the field. He was selected by the later Walter Camp for All-American center, and "John W." so far outshone all the other centers that he had no competition. No one was selected even for second choice. He also rowed on the crew. Dr. Adams has always maintained his interest in athletics and a few years ago served as president of the University of Pennsylvania Athletic Association.

During the summer of 1918, Dr. Adams was requested, by the War Department, to act as contract veterinarian. He straightway accepted this call to duty and visited thirteen auxiliary remount depots for the purpose of instructing veterinary officers and enlisted men in veterinary surgical procedure. For many years he was non-resident lecturer at the New York State Veterinary College, Cornell University. Dr. Adams was one of the editors of *The Veterinary Magazine* and the translator of Lungwitz's Text-book of Horseshoeing.

Dr. Adams joined the A. V. M. A. in 1894. With Dr. Chas. E. Clayton, of New York City, he shares the honor of being the only members still on the roll who joined that year. Dr. Adams was Resident Secretary for Pennsylvania, 1906-07, chairman of the Committee on Resolutions, 1915-16; member (1923-25) and chairman (1919-23) of the Committee on History; vice-president, 1912-13. He was president of the Pennsylvania State Veterinary Medical Association, 1921-22; vice-president of the Keystone (Philadelphia) Veterinary Medical Association (1901-02); member of the Master Horseshoers National Protective Association; honorary secretary of the Veterinary Medical Society of the

University of Pennsylvania; member of Psi Upsilon and Alpha Psi fraternities.

From these few facts it will be seen that Dr. Adams comes into his new office unusually well qualified. As a teacher and a practitioner he has had actual experience in that combination of fields which has so well qualified other great veterinarians who have been honored with the office during the past fifty years, dating from 1875 when Dr. A. Liautard was elected president for his first term. Dr. Adams' close association with Dr. Leonard Pearson, for a continuous period of thirty years, might be mentioned as another of his most valuable assets.

The kind of a man who never lets a harsh word pass his lips, the kind of a man to whom nobody is ever afraid to go with his troubles, the kind of a man who takes things as they come and seldom worries, the kind of a man who can take a joke and come back with a good story—or a dozen of them if necessary, and each one better than the one before, the kind of a man who has earned his sterling reputation by sheer ability and close application—are just a few comments on our new president, based on what is practically a life-long acquaintance, of which we are just now more proud than ever.

THE CANDLE WENT OUT

The veterinary profession has lost one of its most outstanding figures in the death of

WILLIAM HADDOCK DALRYMPLE
April 23, 1856—July 17, 1925

Few members of any profession have been the recipients of as many honors as Dr. Dalrymple. These honors were thrice richly deserved, were appreciated and cherished to the same extent, and at all times gracefully worn. There was no pretence in his make-up. He was just what he appeared to be. As stated by one of Dr. Dalrymple's closest associates, "He was a very peculiar character—a combination of good, common sense, scientific knowledge, high moral standard and wonderful personality. He could talk to the farmer or the President."

When informed of Dr. Dalrymple's death, Governor Henry L. Fuqua said:

"The state and nation has indeed suffered a great loss. His service to the agricultural interests of Louisiana was indeed great and his self-sacrificing devotion, that meant so small a return to himself, should be an inspiration and a call of service to the State always."

The New Orleans Item paid the following tribute:

"In Dr. Dalrymple death removes a man genuinely distinguished in his calling. It is unfortunate that the magnificent new facilities of our State University are not to be at the disposal of a worker who gave so many of his years to the teaching and exemplification of veterinary science in Louisiana, against difficulties and handicaps imposed by lack of facilities. He was devoted to his work, and his devotion brought distinction to the University as well as to himself. He will be sadly missed."

Dr. Dalrymple's true worth as a citizen was fully appreciated by those with whom he came in daily contact. His city and his state were proud of him. *The Baton Rouge State Times* said:

"Louisiana, particularly Baton Rouge, has been highly honored in being the home by adoption of Dr. Dalrymple. To Louisiana he came in the prime of his young manhood from far-away Scotland, the land of his nativity. Here he reared his family, taught our youth, wrote his books. Rejecting opportunities for wealth by commercializing his name, here he lived quietly among us, doing his work from day to day, and a notable work it was."

As a teacher Dr. Dalrymple was intensely popular. Year after year the students of Louisiana State University voted him the most popular professor in the institution. Colonel Thomas D. Boyd, president of the University, said:

"Dr. Dalrymple was one of the ablest and best loved members of the Louisiana State University faculty. His membership in the faculty was an honor to L. S. U., because he was recognized as one of the greatest men in his specialty in the United States."

Elsewhere we record a few of the outstanding facts in the career of this great veterinarian. Certainly his life is an inspiration. We looked forward to his letters. Even in poor health, and with his manifold duties, he kept up his correspondence—now a word of fatherly advice or a note of sympathetic encouragement, now just a news item for the JOURNAL or perhaps a card at Christmas—the little marks of a real, unalloyed friendship, the outward expressions of a kindly and generous heart.

Unaware of the exact nature of his illness, kept from him by his physician, who fully realized his patient's condition, Dr. Dalrymple passed peacefully away, surrounded by his family, on Friday morning, July 17, at 8 o'clock. As a close friend observed, "The candle went out."

APPLICATIONS FOR MEMBERSHIP

(See April, 1925, JOURNAL)

FIRST LISTING

ARNOLD, T. F. 407 Hawaiian Trust Bldg., Honolulu, T. H.
V. S., Ontario Veterinary College, 1890
Vouchers: P. H. Browning and H. B. Elliot.

BUTLER, WILLIAM J. 732 No. Benton Ave., Helena, Mont.
D. V. S., New York-American Veterinary College, 1903
Vouchers: M. Jacob, W. F. Crewe, and Hadleigh Marsh.

CASE L. E. P. O. Box 296, Honolulu, T. H.
D. V. M., Cornell University, 1908
Vouchers: P. H. Browning and C. B. Elliot.

CASH, NORRIS D. Box 97, K. S. A. C., Manhattan, Kans.
D. V. M., Kansas State Agricultural College, 1925
Vouchers: C. E. Sawyer and J. H. Burt.

COLTON, CYRIL H. Box 688, Baker, Ore.
D. V. M., Colorado Agricultural College, 1921
Vouchers: William H. Lytle and C. R. Donham.

CONTI, L. F. 203 Administration Bldg., Los Angeles, Calif.
D. V. M., San Francisco Veterinary College, 1917
Vouchers: John L. Tyler and L. M. Hurt.

CUMMING, WILLIAM H. Colfax, Wash.
D. V. M., Washington State College, 1905
Vouchers: E. E. Wegner and William H. Lytle.

DOYLE, THOMAS A. 16 Wilson St., Natick, Mass.
V. M. D., University of Pennsylvania, 1909
Vouchers: L. H. Adams and H. W. Jakeman.

FOWLER, GEORGE ROCKWELL Pullman, Wash.
B. S., D. V. M., Washington State College, 1925
Vouchers: A. R. Galbraith and E. A. Ehmer.

GLAISYER, A. REGINALD Kalaheo, Kauai, T. H.
D. V. M., Iowa State College, 1899
Vouchers: Cyril Golding and P. H. Browning.

GRIFFENHAGEN, RICHARD BERNARD 726 So. 6th St., Grants Pass, Ore.
D. V. M., Colorado Agricultural College, 1923
Vouchers: E. E. Chase and William H. Lytle.

HEATH, BERT W. 110 W. Broadway, Whittier, Calif.
M. D. C., Chicago Veterinary College, 1907
Vouchers: John L. Tyler and C. A. White.

HENDRIKSEN, ALFRED Burlington, Wash.
D. V. M., Washington State College, 1919
Vouchers: Carl Cozier and E. A. Ehmer.

HOBBS, SHIRLEY D. P. O. Box 87, Moultrie, Ga.
D. V. M., Cincinnati Veterinary College, 1914
Vouchers: J. R. Aufente and T. L. Wright.

HOLTZ, WILLIAM C. 812 So. Western Ave, Chicago, Ill..
M. D. C., Chicago Veterinary College, 1907
Vouchers: A. H. Baker and L. A. Merillat.

HOWARTH, JOHN ALBERT Pullman, Wash.
B. S. A., Kansas State Agricultural College, 1921
D. V. M., Kansas State Agricultural College, 1923
Vouchers: A. R. Galbraith and J. N. Shaw.

JONES, E. E. 975 Bundy Drive, West Los Angeles, Calif.
D. V. M., Iowa State College, 1919
Vouchers: John L. Tyler and L. M. Hurt.

KORINEK, GEORGE FRANKLIN Stayton, Ore.
V. S., B. V. Sc., Ontario Veterinary College, University of Toronto, 1910
Vouchers: Thomas B. Carter and E. E. Wegner.

KATSUNUMA, TOMIZO 2304 Metcalf St., Honolulu, T. H.
Komaba Veterinary University, Japan, 1886
Vouchers: P. H. Browning and Cyril P. Golding.

McMULLEN, ROBERT H. 203 Administration Bldg., Los Angeles, Calif.
M. D. C., Chicago Veterinary College, 1892
Vouchers: John L. Tyler and L. M. Hurt.

MAGEE, EDWARD J. 105 Florida Ave., Amsterdam, N. Y.
V. S., Ontario Veterinary College, 1902
D. V. S., New York American Veterinary College, 1904
Vouchers: Wm. Henry Kelly and Otto Faust.

MILLER, STEPHEN T. 502 So. Wenatchee Ave., Wenatchee, Wash.
D. V. S., Iowa Veterinary College (Des Moines), 1893
Vouchers: Carl Cozier and J. W. Kalkus.

PIKE, LESLIE E. 1220 Bennett Ave., Long Beach, Calif.
D. V. M., McKillip Veterinary College, 1917
Vouchers: John L. Tyler and L. M. Hurt.

POWNELL, A. H. 785 Lyon St., Los Angeles, Calif.
D. V. M., Chicago Veterinary College, 1913
Vouchers: John L. Tyler and P. H. Browning.

ROWAT, ALLAN RITCHIE P. O. Box 193, Honokaa, T. H.
V. S., Montreal Veterinary College, 1887
D. V. S., McGill University, 1901
Vouchers: C. B. Elliot and Cyril Golding.

REID, CHARLES H. 203 Administration Bldg., Los Angeles, Calif.
D. V. M., Kansas City Veterinary College, 1918
Vouchers: John L. Tyler and L. M. Hurt.

STOVER, THEODORE J. P. O. Box 589, Arcadia, Calif.
V. S., Ontario Veterinary College, 1901
Vouchers: John L. Tyler and L. M. Hurt.

SPARROW, MICHAEL 636 Marine Drive W., Vancouver, B. C.
B. V. Sc., Ontario Veterinary College, 1912
Vouchers: H. W. Mustard and J. G. Jervis.

SPROULE, WILLIAM A. Headquarters Hawaiian Dept., Honolulu T.H.
V. S., Ontario Veterinary College, 1899
Vouchers: S. C. Smock and P. H. Browning.

STALLINGS, ARCHIE 1206 City Park, Houston, Tex.
D. V. M., Texas A. & M. College, 1923
Vouchers: R. P. Marsteller and E. W. Price.

WHITLOW, ARCHIE Swea City, Iowa
D. V. M., McKillip Veterinary College, 1919
Vouchers: A. C. Drach and Robert D. Wall.

WILLIAMS, CHARLES S. 11th Medical Regiment, Schofield Barracks, T. H.
V. S., Ohio State University, 1912
Vouchers: P. H. Browning and J. E. Behney.

WOOD, JOHN FREDERICK Gifford P. O., B. C.
V. S., Ontario Veterinary College, 1913
Vouchers: H. W. Mustard and J. G. Jervis.

WRIGHT, FREDERICK CHARLES 411 W. Fifth St., Santa Ana, Calif.
D. V. Sc., San Francisco Veterinary College, 1910
Vouchers: John L. Tyler and C. A. White.

ZINK, CHARLES HENRY 203 Administration Bldg., Los Angeles, Calif.
D. V. S., McGill University, 1895
Vouchers: John L. Tyler and L. M. Hurt.

APPLICATIONS PENDING

SECOND LISTING

Anderson, Ben, Worthington, Minn.
Brinkman, Norman Henry, Collins, Iowa.
Core, O. H., 721 State Office Bldg., Lansing, Mich.
Emmer, Frank J., Richmond, Mich.
Ferguson, George Albert, 505 Loyal St., Danville, Va.
Gitzen, Giles A., 111 No. Fir St., Medford, Ore.
Horning, J. G., 1711 Preston Ave., Houston, Tex.
Huffman, Ward T., 339 State House, Boise, Idaho.
Lanigan, Oscar John, 633 Live Stock Exch. Bldg., So. St. Paul, Minn.
Lizana, Fernand J., 2106 No. Clairborne Ave., New Orleans, La.
Morency, H. L., Box 387, Boulder, Colo.
Nielsen, N. E., University of Nevada, Reno, Nev.
Nyline, Arvid W., c/o Y. M. C. A., Clinton, Ill.
Rankin, John F., Foot of 7th St., Astoria, Ore.
Reid, Ralph Preston, 847 So. Iowa Ave., Washington, Iowa.
Schafer, Claude Christopher, Linden, Mich.
Sholl, Lloyd B., Michigan State College, East Lansing, Mich.
Stapp, Earl W., 2226 Perry St., Detroit, Mich.
Van Vliet, John W., Brookings, So. Dak.

COMING VETERINARY MEETINGS

New York City, Veterinary Medical Association of. Academy of Medicine, 17 W. 43rd St., New York, N. Y. Sept. 2, 1925. Dr. C. G. Rohrer, Secretary, 40 W. 61st St., New York, N. Y.

Georgia State Veterinary Association. Brunswick, Ga. Sept. 7-8-9, 1925. Dr. Peter F. Bahnsen, Secretary, State Capitol, Atlanta, Ga.

Saginaw Valley Veterinary Medical Association. Saginaw, Mich. Sept. 10, 1925. Dr. W. E. Coomer, Secretary, Bay City, Mich.

Pennsylvania State Veterinary Medical Association. Williamsport, Pa. Sept. 16-17, 1925. Dr. H. R. Church, B. A. I., Harrisburg, Pa.

Wabash Valley Veterinary Association. Washington, Ind. Sept. 18, 1925. Dr. M. W. Scott, Secretary, 304 W. 10th St., Vincennes, Ind.

Massachusetts Veterinary Association. Springfield, Mass. Sept. 23, 1925. Dr. H. W. Jakeman, Secretary, 44 Bromfield St., Boston, Mass.

Western Michigan Veterinary Medical Association. Grand Rapids, Mich. Sept. 24, 1925. Dr. J. Y. Veenstra, Secretary, 439 La Grave Ave., Grand Rapids, Mich.

American Humane Association. Toledo, Ohio. Oct. 5-6-7, 1925. Mr. Sydney H. Coleman, Gen. Manager, Humane Society Bldg., Albany, N. Y.

Eastern Iowa Veterinary Association. Cedar Rapids, Iowa. Oct. 7-8, 1925. Dr. F. J. Crow, Secretary, Iowa City, Iowa.

Southeastern Michigan Veterinary Medical Association. Detroit, Mich. Oct. 14, 1925. Dr. H. Preston Hoskins, Secretary, 716 Book Bldg., Detroit, Mich.

Maine Veterinary Medical Association. Lewiston, Maine. Oct. 14, 1925. Dr. A. J. Neal, Secretary, Bangor, Me.

Dixie Veterinary Medical Association. Hotel Claridge, Memphis, Tenn. Oct. 14-15, 1925. Dr. C. C. Brown, Secretary, Union Stock Yards, Memphis, Tenn.

Ontario Veterinary Association. Ontario Veterinary College, Guelph, Ont. Oct. 14-15, 1925. Dr. James S. Glover, Secretary, c/o Farmers' Dairy Co., Ltd., Walmer Rd. & Bridgeman St., Toronto, Ont.

Capitol Veterinary Medical Association. Lansing, Mich. Oct. 22, 1925. Dr. A. E. Erickson, Secretary, Charlotte, Mich.

THE BACTERIOPHAGE AS AN AGENT OF VACCINATION AGAINST "BARBONE" DISEASE*

By G. M. Le Louet,

Chief, Pasteur Institute, Saigon, Indo-China.

In a monograph entitled, "The Bacteriophage and Immunity," F. D'Herelle devoted a special article to the essay, written jointly by him and myself, on "Hemorrhagic Septicemia of the Buffalo" (barbone, as it is more usually called) in Cochinchina, and gave a full account of the conditions which led to the isolation of the first specific bacteriophage exerting a strong influence on the ovoid bacteria, the specific agent of that terrible disease.

The virulence of this bacteriophage, though weak at first, progressively increased through successive passages on fresh cultures of Pasteurella and soon increased to such an extent that a mere trace of a culture of bacteriophage proved sufficient to provoke complete lysis of a culture within three or four hours.

A long series of investigations leads to the positive conclusion that the bacteriolysates thus obtained are endowed with immunizing properties. The immunity conferred by the subcutaneous injection of doses of the bacteriolysates, ranging from 0.04 cc to 1.0 cc, in susceptible subjects (steers or young buffaloes) is strong and lasting. In most of the cases it resists test injections made at various intervals after the vaccinating inoculation with large doses of virus, either full strength or diluted.

In this way we obtain evidence that a dose of 0.5 cc of bacteriolysate protects against the injection of 0.1 cc of a virulent bacterial culture, diluted in 1.0 cc of distilled water and injected forty-three days later. The immunity thus obtained remains unlimited and positive for at least one year and forty-three days after the immunizing injection has been made. We obtain the same results with doses of 0.5 cc and 1.0 cc of bacteriolysate, so that finally the average dose has been fixed for once and for all at 1.0 cc per animal. The bacteriolysate which we used and which we simply called "vaccin anti-barbonneux" is prepared according to the general technic described by D'Herelle. In order to exercise every precaution the product of the lysis is always filtered through an L3 porous candle and distributed in

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open bottles that are placed in the drying oven previous to any sealing operation.

In fact, even in a perfectly clear lysate, a few ovoid bacteria, bacteriophage-resisting and capable of yielding secondary cultures, may remain; it is then absolutely necessary to get rid of these bacteria. Filtration through an L3 porous candle always proves satisfactory; owing to the very serious consequences which may result from using a carelessly filtered vaccine, either from a mistake in the manipulation, or on account of the porous candle being of a poor quality, it is highly recommended and it appears indispensable to leave the bottles in the drying oven some 24 to 48 hours, or longer, if necessary, after the distribution, and to use only those which, after such a test, remain perfectly clear and without any clouding flocculi, or deposit.

Such a bacteriolysate always proves harmless however large the dose injected may be and without consideration as to the means adopted.. We never noted intoxication of any kind following the application of such a method. On the contrary, in certain cases, which we intend to examine later on, large doses lead to really remarkable cures.

It must, nevertheless, be acknowledged that such a method of vaccination does not always prove successful. Owing to reasons not well understood, a state of immunity does not always follow the injection of the bacteriolysate. It appears, from experiments which we always carried on with susceptible animals, that seventeen to twenty per cent of those vaccinated remain absolutely non-immunized, while the others are perfectly protected.

While the latter are resisting test inoculations ranging from 500 to 1500 fatal doses, the first ones, though tried under similar conditions, succumb at more or less lengthy intervals. What are the causes of such failures? We believe that they are numerous and very complicated, but we intend to discuss this at the proper time and place.

Be that as it may, we are dealing with a product which possesses the following characteristics:

Being in all cases absolutely harmless, it is endowed with a high power of immunization, but the said faculty sometimes proves insufficient to protect animals placed under severe conditions of experimentation, as hold in the laboratory.

Under these conditions, and as long as our convictions remain strongly founded on the splendid results of an extensive though rigorous experiment, it appeared to us that a practical application

of the method should be made outside of the laboratory, and under the same conditions for the natural development of barbone. The experiments were to be made for important purposes without any guarantee and free from any charge.

We were entitled to conduct such experiments for two reasons:

First, the action of the bacteriolysate is absolutely harmless.

Second, veterinary science remains actually helpless against the disastrous ravages of hemorraghic septicemia of buffaloes and cattle. A wonderful field for experimenting was opened to us. Indeed it has already been said that barbone disease is raging as an enzootic in the western provinces of Cochinchina. Every year the buffaloes, working in the rice-fields, die by thousands, and certain particularly devastating epizootics actually endangered the crops.

We then asked the European and native veterinary surgeons, already living in the provinces, to try unofficial experiments with the quite harmless method, the vaccine distributed in vials of 20 cc each was to be employed at a standard dosage of 1.0 cc per animal. The first experiment gave the following results:

At Suzannah: Twenty-two buffaloes, all rather aged, were each injected with one cubic centimeter of vaccine without showing any kind of trouble; forty days later they were tested with a dose of 0.25 cc of a virulent bacterial culture, twenty-four hours old; this is equivalent to about 1000 to 1500 fatal doses. One injected buffalo died sixteen hours after the injection; five vaccinated animals died two or three days later than the test animals, and the seventeen others were, following the reaction to the test inoculation, entirely protected. We were permitted to believe that, when under natural conditions, the immunizing element, as well as the immunization itself, will never have to oppose such large quantities of virus, prepared in the form of heavy dilutions and penetrating the organism under such severe conditions, and we were entitled to conclude that the percentage of the animals effectually protected by that method of vaccination against natural infection, should, in consequence, prove to be greater than 17/22 ,that is, 77 per cent.

The results thus obtained have never lessened our hopes up to the present day. Owing to the devotion of the provincial veterinary surgeons, the anti-barbone vaccination was used as a trial as frequently as possible in the course of numerous epizootics, which raged furiously in West Cochinchina. Twelve thousand doses of vaccine were used in the first seven months of the present

year, and always under similar conditions and circumstances. A focus of barbone proving particularly deadly is reported to the Veterinary Service. After a successful and rapid intervention in the very focus of infection and in the neighborhood, 200, 300 or 500 buffaloes were vaccinated within a few days. There were no deaths at all. They were unable to record any accident during the test following the vaccination. The few casualties reported and which were due to barbone, always occurred at intervals which necessarily follow the process of immunization, namely, twelve to twenty days in different cases.

It is pretty well known that, in certain regions, barbone, after raging furiously, suddenly disappears and that some few recoveries may be noted (less than one per cent). With regard to the 12,000 vaccinations made during these few months, no mortality followed. Every experiment was made with a few hundred animals.

Under such conditions it would be difficult to say that success is due mainly to mere coincidence. There must certainly be some relation between cause and effect, between vaccination and improvement of animal health. French planters, and even the natives, were so struck by such a successful outcome that they actually came to us for the purpose of getting their droves vaccinated. This remains as an incontrovertible proof of success.

Some other facts should be mentioned also. Such a disease usually kills animals within a few hours. A veterinary surgeon rarely arrives in time to observe and cure sick animals. Nevertheless, and as the case may sometimes happen, I instructed the veterinary surgeons to inquire carefully, in order to try curative treatment with large doses of bacteriolysate. Fortunately, it was possible to locate animals in different stages of the disease and, in most cases, near death. Some of them were already at the point of death and there appeared to be no hope of curing them. Some intravenous, or at least subcutaneous, injections of 20, 30, or 40 cc enabled us, in a few cases, (about seven or eight) to bring to life again some animals which were considered as lost, barbone being a disease that is known to be followed by death in 99 per cent of the cases.

Be that as it may, a rapid improvement was brought about within three or four hours after the inoculation. Animals were then able to stand up, take food, and the next morning they were cured. A similar statement was made to me a few days ago by

Mr. Jacotot, a veterinary surgeon in the laboratory of the Pasteur Institute of Nhatrang.

There is scarcely any need to add that these wonderful cures were highly favorable to the adoption of this process of anti-barbone vaccination. Nevertheless, we believe that we must continue with our experiments until we can be absolutely certain of the results. As many eminent scientists have already made criticisms regarding the nature of bacteriophage, it appeared to us most convenient to collect as many facts as possible, in order to be in a position to defend strongly the efficiency of such a method.

However, we strongly believe that it is necessary to place our experiments on trial and, moreover, to submit them to the careful control of laboratories which may be in a position to observe barbone epizootics.

CONVENTION NOTES

Only four ex-presidents of the A. V. M. A. were present: Drs. George H. Glover, John R. Mohler, A. T. Kinsley, and C. H. Stange.

Dr. W. G. Hollingworth, of Utica, N. Y., was the oldest member in attendance, having joined the A. V. M. A. in 1885. Dr. and Mrs. Hollingworth made the trip with the A. V. M. A. party over the Great Northern Route.

Among the members present were two who joined the Association in 1890: Drs. A. H. Baker, of Chicago, and S. B. Nelson, of Pullman, Wash. It was Dr. Nelson's first appearance at a meeting for a number of years.

Dr. W. W. Dimock was so enthused over landing Lexington for the 1926 meeting that he talked at the banquet for one hour and eighteen minutes, and thereby established a record for length of after-dinner speeches.

Treasurer Jacob was interviewed quite frequently on the subject of evolution. The information which he was able to give was so satisfactory that the Association felt that it would be safe to leave our funds in Monkeyland for another year, and proceeded to re-elect Dr. Jacob for his eighth term.

PROBLEMS CONFRONTING THE FIELD VETERINARIAN IN THE EMPLOY OF THE MINNESOTA STATE LIVE STOCK SANITARY BOARD*

By R. FENSTERMACHER, *St. Paul, Minn.*

Field Veterinarian, Minnesota State Live Stock Sanitary Board.

The duties of a field veterinarian are many and varied. The chief function of the Live Stock Sanitary Board is to control contagious and infectious diseases, and the field veterinarian is a legal representative of this Board. Our services are in demand by practicing veterinarians, farmers, and county agents, and when called for such service it is our duty to consult with the local veterinarian and the other persons concerned in the call. In case a disease of a contagious nature is found or suspected to exist, it is our duty to estblish the necessary quarantines. If it is impossible to make a positive diagnosis in the field, we obtain specimens and request the laboratory to assist in making the final decision. We are all aware that there are certain diseases that require laboratory examination to make a positive diagnosis.

I wish to have the fact understood, that we consider the practicing veterinarian as the guardian of the health of the domestic animals in his locality. It is you who are called daily to diagnose and advise treatment for the different ailments of the live stock owned by your clients. You are the first ones called to make a diagnosis. Your worth as a diagnostician is recognized by your clients according to your ability. In case you find a dangerous contagious disease that requires quarantine measures, the Live Stock Sanitary Board establishes the necessary quarantine. We are also called in many instances to assist veterinarians in making a diagnosis where you feel that you need assistance. In case there is a doubt as to the exact infection present, we then take specimens to the laboratory at University Farm for further examination and diagnosis.

We know that you are usually the ones called to make the first diagnosis and that we are aware of the difficulty in which you are placed, and that the rapid control of the dangerous and communicable diseases depends a great deal upon your judgment. Our office has many requests from individual farmers and county agents for our services in diagnosing and advising treatment for

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numerous cases. Permit me to advise you that those making these requests are always asked if they have called their local veterinarian and, if not, they are instructed to do so, and then field veterinarians will be sent to assist, provided it is necessary.

Permit the writer to cite one example of the rapid spread of a contagious disease. During the outbreak of anthrax in the vicinity of Montevideo, in 1919, it was necessary, within ten days time after the diagnosis was made, for the Board to quarantine an area twenty-five miles square. This quarantine prohibited the shipment of any live stock from this area for any purpose whatsoever. All railroad yards were included. As the outbreak abated the quarantined area was released accordingly. During any outbreak such as this one, it is not difficult to obtain the cooperation of all the owners; and in this instance we requested all the surrounding veterinarians in that vicinity to assist in the vaccinating of the exposed animals. We had splendid cooperation from the owners and every veterinarian whom we called upon for assistance left his practice and aided in the control of this disease. During the first of the outbreak it was not uncommon to find an animal dead, due to anthrax, and then have the disease appear on another farm six to ten miles distant. The method of the rapid spread of this outbreak has never been definitely ascertained.

Indemnity For Cases of Vaccination Anthrax

The legislature of 1921 passed a law, whereby the owner of an infected farm would be reimbursed for any losses from vaccination anthrax where such vaccination had been ordered by the Live Stock Sanitary Board. It has been the policy of this Board to vaccinate all the live stock on the most badly infected farms every spring. The owner purchases the necessary vaccine and one of the field veterinarians does the vaccinating.

During 1919 and 1920, due to the laws and regulations in effect, it required the services of three to five field veterinarians to administer the serum-virus treatment to hogs in non-infected territory whose owners desired such service. In 1921 our Board succeeded in having the law amended permitting the Board to issue special permits to veterinarians to double-treat hogs in non-infected territory under special quarantine provisions, also the administering of the serum-virus treatment of hogs within a six-mile radius of an infected farm was continued under a blanket permit issued to every qualified veterinarian in the state.

The other change was that in counties where five or more outbreaks of cholera had been reported to the Board by licensed veterinarians within the past twelve months, and provided further that when seven or more owners requested this Board to conduct a school of instruction, it is then necessary that the Board request the Extension Department of the Agricultural College to hold such a school. This course of instruction is in charge of Dr. W. A. Billings, extension veterinarian. Those who complete the course of instruction and pass the examination are then reported to the Board as eligible to receive permits and, on receipt of their fee of two dollars each, the permit is issued to each owner to use the serum-virus treatment only on his own hogs.

I regret to say that we find a condition that is not easy to explain. Too many veterinarians are not on any too friendly terms with the local county agents. We must recognize the fact that the county agent is there and no doubt will remain in the majority of counties. I am aware that some of these men are ambitious and desire to establish a reputation for themselves, but if the right spirit existed between the veterinarian and the county agent, I believe that this difficulty would solve itself. Personally, I have met just such men and I have always felt that I could express my personal opinion and advise them of the unnecessary, added responsibility they were assuming.

Veterinarians Neglecting Poultry

We also find another situation that should not exist. I refer to the poultry industry. How many veterinarians realize the possibilities of this part of our profession? Too many pay no attention to it whatever. It no doubt has occurred to all of you that one of your clients will come to your office and state that some of his chickens are dying. He wants to know what is wrong and what to do for them. He may want to know whether you are able to cull his flock and remove the non-layers. Some of us admit we do not know anything about poultry diseases, and immediately this client will confer with his county agent. You can rest assured that he will inform the county agent that he had been to your office for advice and being informed that you could offer none he was naturally compelled to obtain assistance elsewhere. I am frank to admit that this fault exists among our practicing veterinarians, as well as the field veterinarians employed by the Live Stock Sanitary Board, and that it behooves all of us to familiarize ourselves with this part of the profession by studying the current literature obtainable on this subject.

During the last two years we have had many reports of suspected foot-and-mouth disease. The great majority of these reports originated from localities where there were no local veterinarians. We investigated every one of these reports and to date found them to be conditions other than foot-and-mouth disease. I might also state that due to the fact that very few Minnesota veterinarians have ever seen this disease, we also received many requests to investigate cases that they had found. Since this disease has again gained entrance into the United States, we must be on the alert for its appearance in our own state.

It has also been necessary to have local health officers or veterinarians supervise the unpacking of numerous shipments of chinaware and other earthen utensils that originated in foreign countries and were consigned to points within this state. To comply with our regulations it is necessary that the packing material be either disinfected or destroyed by burning.

During each year we usually have a few sporadic cases of scabies in sheep and cattle. These cases are usually located in districts where owners are in the habit of purchasing cattle and sheep from outside sources for feeding purposes. Since the regulation was adopted requiring the dipping of sheep that are purchased in public stockyards, we have had very few cases of sheep scabies. The diagnosis of scabies is sometimes very difficult to make. It may require repeated scrapings. In making these scrapings it is necessary that they be made deeply, as frequently in the early stages the parasites are few in number and difficult to find, when examined microscopically.

Work Is Largely Tuberculin Testing

If you were to ask the majority of the field veterinarians as to what their work consists of, they would reply that all they do is to test cattle for tuberculosis. A great many practicing veterinarians feel that an injustice is being done them when any of the field veterinarians employed by the Federal Government or the Live Stock Sanitary Board test herds in their locality that are identified on the Federal-State accredited-herd plan. I do not hesitate to state that the accredited-herd plan, as originated by the late Dr. S. H. Ward, has been the main factor in influencing the owners of cattle to test their herds for tuberculosis. It has had its educational effect in causing the owners to realize the importance of eliminating this infection from their herds.

The majority of veterinarians have done more tuberculin testing during the last few years than they ever did before, and the accredited-herd plan has been one of the chief factors in influencing the owners to consider the importance of having a herd of cattle free of this disease. The majority of veterinarians welcome the area plan when this is put in force, or is proposed to be put into effect, in their respective counties. A few do not, as they feel that it is taking away from them a large part of their yearly income. The latter is to be regretted, for I believe that this plan is one step in advance in the elimination of this infection in larger areas. This is a law put into effect by our legislature and the success or practicability of this plan lies in the hands of the veterinary profession and the owners of cattle in such areas. A plan such as this one must have the full cooperation of the owners to make it successsful. We find that when the first complete test is put on that every one is enthused and the testing progresses with very little opposition. By the time the retests are due, some of the owners become apathetic and we are told: "There are the cattle, get them in; but I don't see the necessity of testing them again." To overcome this condition will require educational campaigns and it is up to our profession to do our part.

The Appraisal of Reactors

This part of my paper leads up to a "sore spot" in the minds of a number of veterinarians—the appraisal of reactors. We find that some feel that an injustice is done them, in view of the fact that they receive instructions from our office to hold the appraisals to a minimum, and they hear that some state or federal veterinarian appraised a reactor in their locality at the limit. I believe that if the individual cases are investigated that a satisfactory reason will be found to justify the appraisal in most of such instances; also, that some veterinarians are kept busy undoing the wrongs done by some of our field veterinarians. Then, again, we find that some owners state that they would rather have their local veterinarian do the testing, because they felt they would receive higher appraisals if reactors were found. We realize the situation in which a veterinarian is placed when he finds reactors in the herd of one of his best clients. The one fact remains—that the higher the appraisals are made the less number of cattle that can be tested under our present method of indemnifying the owners for tuberculous cattle. Keep in mind

that your instructions to keep the appraisals as low as possible are received in letter form, while ours are personal and more emphatic.

Bovine Tuberculosis

The control of this disease has always been a difficult problem, chiefly because of its wide prevalence, the tremendous cost involved, and because the full support and co-operation of the live stock owner is essential. The very character of this disease and all previous history pertaining to its modes of infection and methods of spread indicate that satisfactory progress cannot be made by any half-measures. It is a chronic disease and does not excite suspicion except in advanced cases.

It is unfortunate that the great majority of the infected cattle do not present any physical signs of the disease, and yet many of these animals are the source of the spreading of this infection. While some of the limitations of the tuberculin test are recognized, it is the most practical and best method available, at present, for the detection of infected animals. It has been demonstrated that it is possible, by the application of this test, to eliminate this disease from herds and to maintain them comparatively free from this infection, provided we have the full cooperation of the owners. A great many postmortems have been made on carcasses of reacting cattle and the percentage of no-visible-lesion cases varies a great deal. It is not surprising, in view of the chronic nature of bovine tuberculosis, to find cases in which visible lesions are not found on postmortem examination. This fact is acknowledged by all authorities, but it is not an easy matter to convince many stock owners that the slaughter of these animals, in view of the circumstances, is justified.

The primary purpose of the postmortem inspection, as done in the slaughter-houses under federal supervision, is to determine whether the carcass is fit for food. I can well realize that, after an inspector has gone over about 300 to 400 carcasses, he begins to get tired and does not examine each lymph gland as thoroughly as possible, and this may account for some of the no-visible-lesion reports. But what does hurt is to have some veterinary inspector state to an owner who has come to the plant to see his animal slaughtered: "I wouldn't let any veterinarian condemn an animal like that unless all three tests were applied," or "I can't see why this animal should have been condemned." Such statements as these are unnecessary and do untold wrong to the test.

It is unfortunate that the tuberculin test affords little indication of the extent of the disease in the animal and that at the present time we have no practical method of detecting the dangerous spreaders of the disease until after the autopsy. Those of us who have the opportunity of examining the postmortem findings of the reactors that we condemn are aware that often the reactors that show swellings the size of an English walnut, and larger, quite frequently show the least signs of the disease on postmortem examination. Then we have another type of reaction, the soft, doughy enlargements, generally about the size of a lima bean. They are found at the first observation and may remain until the 150th hour. To my mind, this type of reaction is the most difficult to handle. I have taken reactors out of herds with this type of swelling and found them to be condemned as unfit for food in one case, and in another, with exactly the same kind of a swelling, found that the postmortem revealed no visible lesions. This information led to more careful technic, cleaning the caudal fold more thoroughly, using plenty of alcohol and reducing the amount of tuberculin injected. I then found that I did not have so many of those doughy swellings and it made the interpretation of the test a great deal easier.

Cattle Must Be Properly Confined

I use a Fretz syringe and with a syringeful of tuberculin I usually inject from 15 to 18 cattle. The number injected depends a great deal on how well the individual cattle are restrained. I always insist that some one must hold the animal with a pair of nose tongs or, in case of wild animals, that they be restrained in a chute. I am not expert enough to walk up behind a cow and inject the tuberculin properly in the caudal fold unless the individual animal is restrained in some way or manner.

It is to be regretted that a few scientists and investigators should so thoughtlessly publish articles in our professional magazines dealing with the exceptions occasionally found here and there regarding the tuberculin test. Little do they think how easily these articles can find their way to the desks of members of organizations that are opposed to all modern medical science. I believe that when these cases are thoroughly investigated it will be found that they are dealing with exceptions in general and that the authors are furnishing unjust criticisms of the test. These same scientists would be doing a greater service to everyone in general if they would use their efforts to the same degree in

improving the efficiency of the tuberculin tests, rather than jumping at conclusions derived from exceptional cases.

There are certain things to be kept in mind regarding the test—such as sensitiveness to tuberculin and the conditions under which animals may react and may not react, the healing of tuberculous lesions, natural recovery, resistance and immunity. It should now be clearly recognized that an animal may react to tuberculin (a) but once and never again, (b) to two or more tests and then cease to react, (c) intermittently, or (d) consecutively to every test applied.

In conclusion, I wish to state that every field veterinarian employed by the Federal Government or State Live Stock Sanitary Board is instructed to call on the local veterinarian in each town that he may be detailed to work, as we find that much valuable information is obtained in this manner regarding the status of certain herds under our supervision. I personally have always enjoyed these visits and have been treated with the utmost courtesy possible.

K. C. V. C. ALUMNI AT PORTLAND

The alumni of the Kansas City Veterinary College in attendance at the recent meeting of the A. V. M. A., in Portland, had a reunion and luncheon on July 22, at the Multnomah Hotel. Thirty-two graduates of the college, one former student, and one post-graduate were in attendance.

After partaking of a hearty meal, each alumnus gave a brief history of himself since the time of graduation. In this way, two hours were consumed, and the reports given were quite interesting. The oldest graduate present was Dr. Wm. M. Bell, of Nashville, Tenn., having been graduated in 1892.

It was unanimously agreed that the alumni organization should continue and the Quarterly should be published regularly, as it is the only means of keeping in touch with all alumni. Satisfaction was expressed by several that the records of the K. C. V. C. had been accepted by the Kansas State Agricultural College, and are available at any time from which past records of all alumni may be obtained.

In addition to the thirty-two graduates attending the meeting, there were eighteen ladies, wives, daughters, and sweethearts of the veterinarians, making a total of fifty, a surprisingly large number.

EQUINE PRACTICE*

By B. L. Cook, *Farmington, Minn.*

All veterinarians, whether engaged in general practice or otherwise, are interested in the future welfare of the profession.

Up to recent years, and possibly still in some sections, the horse was the most important of all the domestic animals with which practitioners had to deal. The future of this branch of veterinary science largely depends on the horse industry of the United States, and one can not determine the situation by local conditions, but must make a detailed national survey. It is evident that there are three things—and three things only—all men must have. These are food, clothing and shelter, and two of these come from our farms. The food we eat and the clothes we wear are ours at a nominal cost for the raw materials, because of the application of horse and mule power to farming operations. The farmers of America produce more per man employed on farms than those of any other nation in the world. One hundred years ago more than nine-tenths of our population was engaged in agricultural pursuits. Today, with approximately one-third of our total population engaged in agriculture, we are able to raise enough—yes, more than enough—to feed and clothe our enormous population.

It is well for you to remember that every time you eat a steak, a lamb chop, or a slice of ham or bacon, that back of the cattle, sheep and swine and back of the grain that feeds them and that furnishes the cereals and bread grains for all mankind, stand the horses and mules which have made possible the greatest production per capita that is to be found in any nation on earth.

It may be well also to correct, just at this point, some commonly held erroneous ideas about the extent to which mechanical, motive-power units have displaced horses and mules on farms. Such displacement has been of very slight consequence, for there are now actually in harness more than seventeen million head of horses and mules employed in agricultural pursuits on the farms, ranches and plantations of this country. Approximately two million more are in harness, doing work in cities, towns, villages, mines, lumber camps, road contracts, and other non-agricultural pursuits. In addition to this we have the foals, yearlings and

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two-year-olds that are coming on to take the place of our older animals. These total approximately four and one-half million and over and above this there are about two and one-half million more that represent extra animals, held in reserve on farms, and older animals retained for breeding purposes, plus a good many that are of work age and type, that are running loose on western ranges because not needed on the ranches where they have been reared. A large proportion of these are small and inferior in type and will not bring enough money to justify shipping them to market.

All told we have around twenty-six million head and the decrease from the high mark of twenty-seven million head, which we had on January 1, 1920, has been due to the decrease in breeding during the past five years—a perfectly natural and normal decrease because we had enough animals on hand to do our work and farmers found it possible to obtain more for their grain by selling it as grain, or by marketing it through cattle, sheep or hogs. The important point is that we have an ample supply of horses and mules, always have had, and do not need at the present time any particular increase in total number. We do need, and must have, an increase in the production of certain specific types, to wit; heavy, draft horses; first-class, wagon horses; good race horses; and really high-class, well-mannered, saddle horses. The supply of all these is not equal to the demand and I am gratified to be able to report to you that an increase in these particular types is now taking place in response to the very healthy market demand.

So far as tractors are concerned, there were, on January 1, 1920, only 243,000 tractors on more than six million farms. Some sales have taken place since, but many of those in use in 1920 have gone to the junk pile and, so far as the best evidence now available would indicate, there are not to exceed 300,000 tractors actually ready for work upon American farms and a large proportion of these are not used in field work but are retained exclusively for farm belt-work.

Motor trucks on farms totalled 138,000 in 1920 and there has not been any material increase in number since, because the total amount of hauling on the average 160-acre farm, if all crops were hauled to market, could be done in less than thirty days with the teams available on the farm, and as eighty per cent of this hauling can be done during the fall and winter, when the teams and men would not be otherwise occupied, there is no good reason

for the purchase of motor trucks, which simply represent added machinery investment and do not bring about any increase in farm revenue.

I realize that these statistics are a bit dry but I thought it well to give them in order to bring forcibly to your attention the fact that horses and mules are still of major importance in our farm work and in our highway transportation.

Your interest in this question is direct and extremely practical for you know full well that when the farmers of our nation have abundant crops and good prices they have more money to spend. You receive indirect benefit from the laboring man whose condition is better because he is manufacturing things sold to the farmer. We had a lesson in 1920 and 1921 which we will never forget. The farmer's buying power was reduced almost to nothing by the low prices his products brought and his operating expenses were high. Shortly industries throughout the country were forced to close down and labor's buying power was greatly reduced. This fall, firms in the East watched, with keen eyes, the weather and farm reports of the West, knowing that the successful harvesting of bumper crops was necessary for their continued operation. The use of horses or mules on farms makes it possible for our farmers to produce their crops at less cost than if they were to undertake to use mechanical, motive-power units in the form of tractors or trucks, and this makes possible a wider spread between the cost of production and that which the farmer received for his crops. In other words he has more to spend.

In the same way the use of horses is of direct practical value to business men in cities, for the evidence secured by the Horse Association of America—the great national organization that is working in behalf of horses and mules—shows conclusively that, on all hauls within the horse's working radius and on frequent-stop-and-pick-up work, horses will do the work at much less cost than any other type of motive power that can be used for street transportation.

In this connection I want you to hear what the committee on local deliveries, American Institute of Meat Packers, had to say on this subject only three years ago:

"Delivery costs have risen to alarming figures since the war period, until they represent today from 20 to 60 per cent of the cost of selling our merchandise—and, sadly enough, the tendency is in the direction of more service. But, like the race for armaments, this recklessness must end soon, if packing house profits are not to be permanently impaired. If present costs of delivery could be reasonably curtailed, they would yield a saving comparable to the entire profit made today by the average packing house.

"If packers would pay closer attention to the efficient operation of their present equipment, it would be found that most men clamoring for more actually possess a surplus. When a company buys a motor truck, it buys also an inescapable operating expense running annually from one and a half to three times the cost of the truck. Certainly nothing further need be said on the advisability of caution. But while on the subject let me say that maintenance expense is apt to be a deceiving item. It should never be considered on anything less than a three-year average. During the first year everything looks rosy, since the truck is new, all painted up, and the tires good. The second year generally sees a tire renewal, a repaint, and is 'not so good,' but the third year there comes an overhauling and perhaps a rebuilding charge which staggers; it is charageable, largely, to the first two years of operation. *The true upkeep cost will not be revealed until three years' cost figures are in.*

"The committee's investigation on the comparative costs of operating gas and electric autos as compared with horses leads inevitably to the conclusion that the horse has been, and will continue to be, our most faithful and economical servant. Under twenty miles per day, the horse is most economical. The useful life of a horse in the packers' service has been conservatively estimated at 10 years; that of a wagon, 15 years, and of a set of harness, 15 years. The average life of a gasoline auto will not exceed seven years. Horses can be fed today (August, 1921) at 65 cents per day; automobiles do not feed as cheaply. Horse repair bills, that is the services of old 'Doc Spavin,' are a negligible item; automobile repair bills are not. The investment in a team of horses and a wagon is certainly no more than 25 per cent of that in an automobile of like capacity. Hence our conclusion that on work within the horse's radius the horse will not be denied. At mileage ranging between 20 and 50 miles per day with frequent stops, electrics show an advantage over gas trucks."

The Fair, a Chicago store, using horse-drawn equipment for house-to-house delivery, had one division of the city served with autos, eighteen of which were electric and three gas. They made a detailed analysis of their delivery costs in zones served by horses and in the zones served by the auto trucks, with the result that they found that it cost them a fraction over ten cents per stop in the districts served by auto trucks and a fraction over eight cents per stop in the districts served by horse-drawn equipment, the actual difference amounting to 2.67 cents per stop, which made a difference of $816.68 per route per year. This was in 1920. Similar analysis applied in 1922 showed that the difference was again in favor of horses and to quite as great an extent.

The great difference, of course, lies in the fact that a good horse put into work at six years of age will last nine years. Wagons are good for fifteen years. Harness, if given any care at all, will last twelve years. In dealing with motor trucks you cannot expect more than three to five years' service and it is this great difference in depreciation that makes the horse-drawn delivery so much more economical. This is why all the dairy companies throughout the United States are holding fast to horses and wagons for their house-to-house delivery.

In this connection I may mention the fact that the Budd

Dairy Company, of Columbus, Ohio, went over to electric trucks in 1921 and that fact was blazoned from coast to coast as a remarkable step in modern progress. The electric truck companies widely advertised that it meant the beginning of the end of horse-drawn equipment in the dairy business. Yet, within less than three years' time, the Budd Dairy Company went out of business because of financial difficulties brought on by their enormous investment in electric equipment.

The Abbott Alderney Dairies, of Philadelphia, have explained the difference well when they pointed out that a horse, wagon and harness of first-class type can be bought for $750.00 and that even if they allow one extra horse to each two routes and divide the cost of the extra horse between the two routes, their total cost is only $920.00, while a two-ton electric truck, capable of doing the same work, will cost $4,500.00 in original investment and will cost more in daily maintenance than horse-drawn equipment with three horses kept for each two routes.

To the business man, horse use has a double angle. It means that farmers can produce more cheaply and have more money to spend for things business men have to sell. It also means that the business man can do his hauling and his delivery at less cost, thereby having more money left to be put into his profit account.

It is well to emphasize also that there is more real advertising value in a high-class horse-drawn outfit than there is in any motorized vehicle, for you and I know that there are only two things in the world that every man between sixteen and sixty will stop to look at. A beautiful horse is one of them.

I also wish to make reference to the very rapid increase in the use of horses for pleasure. It is true that we have not the good driving roads that we had in years gone by and that we see relatively few high-class driving horses, but against this we have a greater interest in harness races, in running races, in horse shows and in horseback riding than we ever had at any time in the history of this country.

The Horse Association of America has made exhaustive, detailed surveys in all important cities in the United States and finds that horse-back riding has trebled and in some instances quadrupled in the past four years. In Chicago a census taken in June, this year, disclosed 1,752 horses kept exclusively for riding and also revealed that there are more than eight thousand people riding each week on the bridle paths and bridle trails in that city. In Detroit a similar census, taken in September,

disclosed that there are 547 horses kept exclusively for riding and that there are 1,160 individuals riding each week. All the riding-academy horses are used by several different riders throughout the course of each week. It is also interesting to observe that both in Chicago and Detroit more than sixty per cent of the riders are women and girls.

There is a good reason for the increase in horseback riding. It is an outdoor sport that is good the whole year round. It is strenuous enough in polo for the most hardy; moderate enough in park riding for men of 80 and over. Every one can take what he needs between these two extremes.

Riding has another great advantage in that it gives maximum exercise in minimum time. The man who can spend only an hour a day can swing into the saddle at daybreak and in an hour's vigorous riding put himself in tune for a hard day's work. It does not matter what business or profession you are engaged in. You will do more, do it better, live longer, get more out of life, if you will spend an hour in the saddle every day.

William Muldoon, a world-famous physical trainer, whose specialty for years has been the rehabilitation of business men whose physical and mental powers are beginning to break under the strain of arduous, long-continued, business duties, maintains horseback riding as an integral part of his training methods. He practices what he preaches, for even now, at seventy-nine years of age, he rides nearly one hundred miles per week. In discussing the benefits of riding with Wayne Dinsmore, secretary of the Horse Association of America, he said:

"No remedy known to man has such a powerful and permanent influence in maintaining or regaining health as the judicious employment of cheerful, vigorous exercise in the open air. Horseback riding is a vigorous sport which develops deep breathing in the fresh air. All the muscles of the body are exercised, but moderately, and to a certain extent equally so. This exercise and fresh air is secured without the fatigue incident to walking. The mind must be active in the care of the horse, for there is no person who indulges in this very best of diversions, no matter how long he has been participating in it, who has not something to learn about the art of how to ride properly and to have perfect control of his horse. There is no better companion and no greater friend of mankind than the horse. Learn to love your mount, and learn from him, for a good, intelligent horse has a clear, clean, healthy brain, and he can see, think and act so much more quickly than a human being that it will exercise your mind to keep in touch with him. One of the greatest benefits of horseback riding is the complete mental relaxation it brings, for those who ride good horses forget all else for the time being."

In conclusion, therefore, it appears from such analysis that the future of this branch of veterinary science is on a sound basis. The question arises: Are we going to have practitioners equal

to the task? This remark may seem a trifle out of order, knowing that our course in this profession is at present more complete than ever before. There is this one branch only that I make reference to, not only because of the contrast in the character of the student who matriculates for this course of science but also the contrast in the instructor who teaches it. Most young men who entered the older colleges were naturally horsemen and their horsemanship had been acquired from youth, while few boys of today are talented in this art.

Instructors in our universities of today do not possess a private practice from which to select clinical subjects as did the old, large-city practitioner. The present-day clinical subjects submitted before the student bodies come with little history, as compared with the old-time clinical subject, which had been under constant observation by the instructor himself. It means only that students of today, in order to render efficient service to their clientele, must acquire their practical knowledge by careful study of the horse and his habits.

CONVENTION NOTES

Dr. P. H. Browning, territorial veterinarian of Hawaii, was given the appellation "Honolulu Bill II" by President Merillat.

Many members of the Association had the pleasure of shaking hands with Dr. Rudolph ("Bulldog") Snyder, of California foot-and-mouth disease fame.

Dr. N. F. Williams, state veterinarian of Texas, was the lone representative of the Lone Star State.

Dr. E. M. Pickens, of College Park, Md., had about as many miles of travel to his credit as anybody at the meeting. He joined the A. V. M. A. party at St. Paul.

Dr. G. G. Graham, of Kansas City, accompanied by Mrs. Graham, stopped at Glacier National Park on the way to Portland.

Dr. Clark H. Hays, state veterinarian of Nebraska, was at the meeting, and did not appear to be any the worse for his recent encounter with a Nebraska farmer who objected to having his cattle tested.

HANDLING THE SILVER FOX AND ITS RELATION TO THE VETERINARIAN*

By C. B. SHORE,

Rest Island Silver Fox Farms, Inc., White Bear Lake, Minnesota.

It has been my privilege for some few years past to be associated with one of the largest silver fox and mink ranches in the world, in the capacity of veterinarian in charge to his majesty, The Silver Fox, a phase of the veterinary work which is not included in the usual school curriculum.

The industry at large has now developed past the experimental stage beyond any doubt, and it is my conviction that, with the limited field for practice open to the incoming student of veterinary medicine, there has developed a field for labor with fur-bearing animals that offers a unique and interesting, as well as profitable, source of revenue.

I myself, have found it a diversion from the usual routine practice, with which you as veterinarians come in contact, and I can assure you that it has been a source of considerable satisfaction to me to have had some small part in the development of a phase of animal husbandry which is claiming the attention of an ever-increasing number of patrons and enthusiasts every year.

My experience has confirmed the impression that the native wild animal, even though he be semi-domesticated, still retains the tendency to exhibit the traits of the untamed in their natural habitat, and consequently shows a much more highly developed nervous system and displays an inate fear, which makes the handling of these animals a thing apart from the usual procedure with domesticated animal life.

It therefore becomes necessary for the veterinarian establishing himself in this particular line to become acquainted with the differing functions, such as mating season, length of puberty, times of delivery, and the ills usually attending or attendant upon either the adult or young of these species, in order to cope with the differing phases of animal life requiring the attendance of the veterinarian. Many of our potent drugs used indiscriminately among the larger types of animals at once become inimical to the welfare of the fur-bearing animal. They cannot be prescribed or administered in the usual veterinary dosages, due in

*Presented at the twenty-eighth annual meeting of the Minnesota State Veterinary Medical Association, Minneapolis, Minn., January 14-15, 1925.

some measure, I believe, to this difference in the nervous excitability. I do not mean to convey the idea, however, that the usual veterinary training does not qualify one to serve this phase of animal husbandry, but I wish to emphasize to the profession the desirability and the necessity of increasing our range of usefulness, and adapting our general knowledge to a specific phase of our work.

Working With Valuable Animals

I am perfectly frank in stating that for any one of us, duly qualified veterinarians, called upon to attend a member of this species, the silver fox, with which I am specifically dealing, the dangers of the lack of specific training or procedure in connection with a fox, valued by the owner at a price ranging anywhere from $500 to $1500 and even higher, should create a feeling of caution and certainly serves to stimulate preparedness in order to avoid embarrassment in having an unsatisfactory life termination, possibly in the presence of the owner. I confess that in my earlier procedure, particularly in the handling of the fox while administering carbon tetrachlorid per os, I have encountered this exact picture. And yet, this same carbon tetrachlorid is my best specific in the treatment of hookworm disease and other intestinal parasitisms. The occasion for its use is rather frequent but, as in any malady of a virulent type, requiring a high-powered and specific remedy, it becomes immediately essential that the veterinarian in charge be prepared to act without hesitation. This is one simple illustration of what I mean to convey to you, fellow practitioners, when I state that the work is unique and interesting, although loaded with dynamite.

And I pause here to pay my respects to my colleague and fellow co-worker, Dr. Maurice C. Hall, of Washington, D. C., formerly connected with Parke, Davis & Co., Detroit, Michigan, as parasitologist, and presently retained as senior zoologist in the United States Department of Agriculture, Bureau of Animal Husbandry, Washington, D. C., with whom I had the pleasure of serving in the Veterinary Corps of the United States Army, during a portion of the World War. It is to him that I owe a debt of gratitude for establishing a specific in the treatment of hookworm disease which is sometimes conveyed to the confined animal through the agency of a carrier or through insanitary conditions. Dr. Hall is the discoverer of the practical use of the drug known as carbon tetrachlorid.

I do not know whether or not you are acquainted with the fact that the last five years alone have served to bring the breeding and marketing of live silver foxes from a very modest beginning up to a point where the value of stocks runs into the hundreds of millions of dollars in actual, to say nothing of potential values. This should give us food for thought.

With the attendant decline in veterinary practice in the horse field, although more than offset by the increase and stimulation in dairy practice, there still remains the desirability of applying a professional knowledge to a field which is increasing in scope, with the consequent field of usefulness and added increment to the individual who must depend on it as a source of livelihood, to add to the demands of fashion and to sustain a part of that wild life which has threatened at times to become almost extinct.

Necessary To Improvise Instruments

It may be of interest to you to learn that I have not been able at times to secure the instrument or instruments which a certain condition demanded, and have had to fall back on my own mean ability to invent some few small accessories to my veterinary equipment, in order to meet certain conditions. But, as necessity is ever the mother of invention, we have covered at this date practically every known phase of procedure relative to the destruction of ear mites, hookworms, roundworms, fleas, broken legs, cuts, bites, teeth infection, and the ordinary anatomical derangements of the fox world.

It is not meant to convey the idea that this is an every-day occurrence by any means, but when such conditions arise the veterinarian may with reason expect compensation commensurate with the class of animal with which he is dealing. It is certainly worth more to an owner of a thousand-dollar fox to secure professional service for that fox, than would apply to the nominal fee which you are accustomed to receive in the attendance of the more common domesticated animals.

The one phase of our school life which has been sadly neglected is none other than the field of dietetics. I do not mean this as a criticism of the professional training which we have received, but again, this lack of definite knowledge—the simple field of feeding—has sometimes caused me to pause and reflect on the lack of preparation along these lines demanding daily and continuous attention. It is a simple matter to feed a fox. But this does not mean that we are to give no more attention to a high-

priced animal in confinement than we do to an ordinary house cat or dog which is at liberty at times to forage and thus supply the balance which we know is so essential to the development, general health and productivity. We all know that it is within the power of the keeper of a confined animal to stimulate or retard growth, as has been so frequently demonstrated in our laboratory tests with the guinea pig, dog and rabbit.

It follows as a natural consequence that we particularly, or those interested in the productivity of a high-priced, fur-bearing animal, should give more than passing attention to the balancing of the rations with which this valuable stock is to attain its growth and increase its productiveness.

This alone is a branch of our training which applies not only to the silver fox but to all classes of our domesticated animals under confinement.

Veterinarians Should Be Dietitians

The average owner, of non-professional training, has but slight knowledge of the uses of proteins, carbohydrates, fats and minerals and the supplying of a definite roughage suitable to this type of animal. I again repeat it is a simple matter to feed a fox, but it does require a knowledge of the A. B. C.'s of dietetics. This field is well within the scope of the veterinarian, with his professional knowledge as a background, and I commend it to you as a fertile field for study.

It may be that a fair percentage of the profession is already acquainted with these every-day practices which a veterinarian is ordinarily called upon to perform in work with the silver fox. But to those of you who have not as yet entered into this interesting phase of the work I trust I have conveyed a message of more than passing interest.

Some one will be required to perform the duties attendant upon the unusual pregnancies or the administration of drugs at times, with a knowledge of the physiological and anatomical requirements of these animals which qualifies them to prescribe and to perform minor surgical operations. I ask you frankly, Shall these cases be attended by the veterinarian in your community or shall it be necessary to call for outside assistance to attend them with legitimate animal therapeutics under your very nose? This industry gives promise of development into one of the leading live stock industries in this country, and I again commend to you, for careful thought, the message which I have endeavored to bring to you.

MAKING A MODIFIED ACCREDITED AREA*

By G. M. CARSON, *Thompson, Iowa*

What is a modified accredited area? A modified accredited area is a given area in which all breeding cattle have been tuberculin-tested and the percentage of tuberculosis reduced to less than one-half of one per cent.

Tuberculin is a specific toxic substance produced by the bacillus of tuberculosis. It is used for diagnostic purposes in the detection of active and latent forms of tuberculosis in animals. A potent tuberculin when properly and carefully applied and the results capably interpreted is one of the most reliable diagnostic agents which we have at our command.

Previous to the accredited-herd work in Winnebago County the tuberculin-testing was carried on to quite a large extent by local veterinarians, on cattle for interstate shipment as well as private-herd testing. In the year 1919, the accredited-herd agreements were circulated in our county and the local veterinarians took an active part in encouraging the farmers to sign these agreements to eradicate the disease from their herds and also receive federal and state aid. We local veterinarians were greatly in favor of this work, as we could see that the outcome of the eradication work would be a future benefit to the health of the community and of the live stock, as well as to the welfare of the veterinarians.

Considerable accredited-herd work was done by the federal and state officials and in the meantime some of the towns in the county passed ordinances against the distribution of milk from untested cattle. The applications for having their cattle tested were continually increasing, but the state and federal appropriations were so limited that we could not accommodate all who had signed agreements.

On August 2, 1921, arrangements were made by the state and federal officials that Winnebago County should be considered as a county area for the tuberculosis-eradication work, the County Farm Bureau should hire a veterinarian, and the state and federal departments should pay the indemnity on reacting cattle. From August 8, 1921, the work has been carried on between the County Farm Bureau, the State Commission of Animal Health and the United States Bureau of Animal Industry.

*Presented before the thirty-seventh annual meeting of the Iowa Veterinary Association, Des Moines, Iowa, January 20-23, 1925.

From this time on, a vigorous educational campaign was carried on in connection with the actual testing performed, such as having public demonstrations of slaughtering reacting cattle on the farms in various parts of the county, and farmers in the neighborhood were invited to be present at said demonstrations; also getting groups of farmers to accompany reacting cattle, shipped to various packing-plants, in order to give them an opportunity to see the conditions as found by the inspectors who conducted the postmortems. The testimony of these men was invariably to the effect that they would not keep a tuberculous animal on their premises. These testimonials were beneficial in crystallizing the sentiments of the farmers of the county in favor of having the county freed from tuberculosis. Demonstrations showing how to ventilate the farm buildings, disinfect and clean up the premises were put on with the educational work. The tuberculosis-eradication work progressed as well as could be expected with the limited ability of one man trying to cover the whole county, but was not nearly sufficient to warrant any hope of having the county cleaned in the near future.

In January, 1923, the amendment of Section 10, Chapter 287, Acts of the 38th General Assembly, changed the law and made it possible for the counties in the state of Iowa to become accredited county areas.

This area plan began November 1, 1923, with 80.3 per cent of the owners of breeding cattle having signed petitions. It was through the cooperation of the Farm Bureau that these petitions were successfully signed. Township meetings were held where the work was thoroughly discussed and outlined, petitions, bulletins and questionnaires were distributed, the township school district cooperators were given instructions in the rules and regulations and through these men the success of the signing of petitions was accomplished.

From April 14 to May 3, 1924, the Bureau of Animal Industry and the State sent in a force of nine inspectors and with our local veterinarians 30,334 cattle were tested and 222 reactors were found. On July 12, 1924, the retest was completed on the infected herds and 29 reactors found, bringing our percentage of tuberculosis down to .09 of one per cent.

On July 25, 1924, we received a telegram that Winnebago County was declared a modified accredited area and on July 26 the first carload of hogs to receive the premium was shipped to Chicago. We have been receiving the premium since. Approxi-

mately $9730.00 has been received by farmers as premiums on hogs.

The success of making a modified accredited area depends wholly upon the cooperation of all concerned. We received splendid cooperation through the Secretary of Agriculture, the Bureau of Animal Industry, local veternarians, the Extension Department at Ames, as well as the Farm Bureau officials and farmers of the county. It took team-work to put it over, we were hitched and stayed hitched until the last reactor was shipped out of our county for slaughter.

This cooperation I have found to be the essential part of carrying on this eradication work and in order to get this cooperation it is well to remember many things, both to do and not to do. I have found the farmers, with a few exceptions, are very reasonable when you approach them in the right way, but farmers, as a rule, like most other people, have to be handled in the right spirit. First, you will have to show them that the thing you want to put over is to their personal interest, by showing them the loss that is caused by keeping the diseased animals and also the danger of exposing their loved one in case of retaining and using the products of such diseased animals. The indemntiy paid by the state and federal government is essential in this work, as many of the owners could not afford the financial loss in connection with having part of their herd condemned without compensation. We have experienced very little objection, however, to the five per cent deduction from the valuation of the herd.

It is also very important that the veterinarians who go to the farms to apply the test meet the farmers in a good spirit, even though they sometimes will find that they are not getting the right cooperation from the farmer and consequently, in some cases, will have to spend more time than is actually necessary in doing the work. In applying this test it is very important for us veterinarians so to conduct ourselves as to give the farmers the impression, at least, that we know our profession and that we are willing to explain and answer questions that are put to us by the owner.

My experience as inspector-in-charge of Winnebago County has been that, in carrying out this work, to have the full cooperation of the farmers through their organizations—in our case the Farm Bureau—and to get that cooperation it is necessary for both the veterinarian in charge and the officers of such farmers'

organizations as the Farm Bureau, to have a mutual understanding of the different functions to be carried on by each, such as signing petitions and lining up the work for the inspectors, and that such arrangements, as nearly as practical, will be adhered to by all concerned in the county. We have found by experience that in circulating petitions that it is not wise to talk too much law and what a man has to do. It is better to pass up an obstinate herd-owner than to stir him up too much on the first round, for it has been our experience that, when most of his neighbors have signed, he will not be very hard to get and in this the local farmers can be of great assistance. This will hold true also after seventy-five per cent of the cattle-owners have signed the petitions and the county becomes an area. This, however, does not mean that the law is not essential and that it should not be applied in any case, but should be applied only as a last resort.

In closing let me say that this is the plan on which we carried on the work in Winnebago County and which brought the eradication to a successful conclusion, to the satisfaction of all concerned.

BUREAU TRANSFERS

Dr. Ernest F. Ahnert (U. P. '13), from San Francisco, Calif., to Reno, Nev.

Dr. E. V. Stromlund, from Lincoln, Nebr., to Sioux City, Iowa, on meat inspection.

Dr. John M. Young (N. Y.-Amer. '03), from Brooklyn, N. Y., to Jersey City, N. J.

Dr. John L. Myers, from Omaha, Nebr., to Lincoln, Nebr., on tuberculosis eradication.

Dr. Charles Webster (Colo. '14), from Fort Worth, Tex., to Topeka, Kans., on field inspection.

Dr. Chas. H. Decker, from Raleigh, N. C., to Columbus, Ohio, on tuberculosis eradication.

Dr. Jens Madsen, from Seattle ,Wash., to Oklahoma City, Okla., in charge of meat inspection.

Dr. David F. Stouffer (K. C. V. C. '06), from Sioux City, Iowa, to Omaha, Nebr., on meat inspection.

Dr. Martin M. Davis (McK. '15), from South St. Paul, Minn., to Pierre, So. Dak., on field inspection.

Dr. John S. Grove (Ont. '92), from Oklahoma City, Okla., to Fort Worth, Tex., in charge of meat inspection.

Dr. Herbert Bryan (U. S. C. V. S. '15), from Fort Worth, Tex., to Asheville, N. C., in charge of meat inspection.

Dr. Clarence L. Norris (K. C. V. C. '07), from Fort Worth, Tex., to Seattle, Wash., in charge of meat inspection.

Dr. H. M. Newton (O. S. U. '05), from Lansing, Mich., to Charleston, W. Va., in charge of tuberculosis eradication.

THE POSSIBLE TRANSMISSION OF FOWL TYPHOID THROUGH THE EGG*

Preliminary Report

By F. R. BEAUDETTE, *New Brunswick, N. J.*

New Jersey Agricultural Experiment Station.

Since Rettger has shown that bacillary white diarrhea is transmitted through the egg, the possibliity of other infections being similarly transmitted seems to be quite within reason. In 1920, Rettger and Scoville described a disease of ducklings caused by an organism of the animal paratyphoid group. They succeeded in isolating the same organism from abdominal cysts in breeding ducks, indicating a possible transmission of the infection through the egg. Taylor calls attention to a high mortality in young chicks due to an outbreak of fowl typhoid, a disease usually associated with adult stock. Rettger and Koser| were able to infect chicks under three days of age with the fowl typhoid organism, but they state that natural infection seldom if ever occurs in very young chicks.

During the past year, the writer has isolated what appears to be the fowl typhoid organism from young chicks on several occasions. This organism was also isolated from the unabsorbed yolk of a young chick, and in another instance from the ovary of an adult hen. These facts indicate a transmission through the egg, hence this preliminary report is submitted at this time. The source of material studied, together with the history obtained, is as follows:

On April 2, 1924, a chick was received from Bergen County, New Jersey, with a statement that 300 from a lot of 500 chicks had died within a few days. The owner believed white diarrhea to be the trouble. From the heart-blood of a chick, two to three weeks of age, a pure culture of the fowl typhoid organism was isolated.

On April 26, 1924, eight 11-day-old chicks were received from Morris County. These chicks had been hatched on April 15. At the time the chicks were examined, 81 had died out of a group of 375. A fowl typhoid-like organism was isolated from

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the heart-blood of one chick and a typical *Bact. pullorum* from another.

A two-weeks-old Barred Plymouth Rock chick was received on May 3, 1924, from Burlington County. No history was given regarding the case. The chick showed a catarrhal enteritis with occasional hemorrhages on the mucosa. The liver was mottled. The fowl typhoid organism was isolated from the heart-blood.

A White Leghorn hen was presented for examination on June 26, 1924, from a flock located in Somerset County. The owner stated that there had been a considerable drop in egg-production, and that some of the birds had died. An examination of this hen showed that the ovaries were pathological, and to all appearances similar to those infected with the white diarrhea organism. However, a culture made from one of the discolored ova yielded a pure growth of the fowl typhoid organism.

A five-weeks-old White Leghorn chick was received on July 12, 1924, from Connecticut. The postmortem examination showed caseous plugs in the ceca, and a small, unabsorbed yolk sac, which was somewhat discolored. A culture taken from the yolk sac also gave a pure growth of what appeared to be the fowl typhoid organism.

Finally, on March 7, 1925, seven chicks about a week old were received from Union County. Over 200 had died in a hatch of 1600. The postmortem appearance was that of white diarrhea, in that the yolk sac was unabsorbed, and the liver was of a distinct yellow color. The intestines were catarrhal and the lungs congested. From the heart-blood a pure culture was obtained which thus far appears to be the fowl typhoid organism.

The fermentation reactions of the organisms isolated were studied on diluted horse serum containing Andrade's indicator. The reactions are given in table I.

An examination of table I shows that culture 238-2 differs somewhat from the others in its ability to produce acid on rhamnose. Likewise, culture 424 fails to produce acid on dulcitol and gives a doubtful reaction on arabinose. Culture 424 also shows a less abundant growth on slanted agar, and it is possible that they represent an atypical strain. None of the strains produced gas. The fermentation reactions of cultures 289 and 664 have not been studied, except on the four sugars reported above.

On March 6, 1925, sixty-six blood samples were collected from the flock in which an ovary infected with the typhoid organism had been found. Agglutination tests were made, using both a white diarrhea and fowl typhoid antigen. One drop of serum was placed in each of two test-tubes, and to one of these 4 cc of white diarrhea antigen were added, and to the other, 2 cc

TABLE I—*Showing fermentation reactions of the various strains isolated*

Culture		238–2	403	300	424	289	664
Age of Specimen		2–3 Weeks	Hen	2–3 Weeks	5 Weeks	11 Days	1 Week
Isolated	From	Heart Blood	Ovary	Heart Blood	Unabsorbed Yolk	Heart Blood	Heart Blood
	Date	4–2–24	6–26–24	5–3–24	7–12–24	4–26–24	3–7–25
Substrata		Acid	Acid	Acid	Acid	Acid	Acid
Dextrose		+	+	+	+	+	+
Maltose		+	+	+	+	+	+
Glycerol		+	+	+	+		
Mannite		+	+	+	+		
Levulose		+	+	+	+		
Mannose		+	+	+	+		
Galactose		+	+	+	+		
Dulcitol		+	+	+	—		
Arabinose		+	+	+	±		
Trehalose		+	+	+	—		
Lactpse		—	—	—	—	—	—
Saccharose		—	—	—	—	—	—
Melezitose		—	—	—	—		
Erythritol		—	—	—	—		
Raffinose		—	—	—	—		
Dextrin		—	—	—	—		
Inulin		—	—	—	—		
Sol. starch		—	—	—	—		
Salicin		—	—	—	—		
Sorbitol		—	—	—	—		
Inositol		—	—	—	—		
Rhamnose		+	—	—	—		
Xylose		—	—	—	—		
Adonitol		—	—	—	—		
Amygdalin		—	—	—	—		

+, acid produced; —, no acid; ±, doubtful reaction

of fowl typhoid antigen. The resulting dilutions were thus about 1-80 for the white diarrhea antigen and 1-40 for the fowl typhoid antigen. The tests were incubated for 24 hours and readings made. It was determined that in the 66 samples, 9 agglutinated both the *Bact. pullorum* and the *Bact. sanguinarium* antigens. No difference in agglutination could be determined. It was then determined to find the titer limit for these antigens. Progressive dilutions were made from 1-40 to 1-1280 and incubated for 24

hours. Readings taken after that time gave the results shown in table II.

An examination of table II shows that there is hardly any difference in the results, whether a *Bact. pullorum* or a *Bact. sanguinarium* antigen is used. In those instances where a difference existed, it was always in favor of the *Bact. pullorum* antigen. In only two cases was there sufficient serum left to attempt an agglutinin-absorption test and, in these instances, the results

TABLE II—*Agglutination tests of sera, using white diarrhea and fowl typhoid antigens*

BIRD	ANTIGEN	DILUTION OF SERUM					
		1–40	1–80	1–160	1–320	1–640	1–280
3	Bact. pullorum	—	++++	++++	++++	++	0
	Bact. sanguinarium	—	++++	++++	++++	++	0
22	Bact. pullorum	—	++++	++++	++++	0	0
	Bact. sanguinarium	—	++++	++	±	0	0
23	Bact. pullorum	++++	++++	++++	++	0	0
	Bact. sanguinarium	++++	++++	+++	0	0	–
26	Bact. pullorum	—	++++	++++	+	0	0
	Bact. sanguinarium	—	++++	++++	±	0	0
33	Bact. pullorum	—	++++	++++	++++	0	0
	Bact. sanguinarium	—	++++	++++	++++	0	0
34	Bact. pullorum	—	++++	+++	0	0	0
	Bact. sanguinarium	—	±	0	0	0	0
36	Bact. pullorum	—	++++	++++	++++	+++	0
	Bact. sanguinarium	—	++++	++++	++++	0	0
50	Bact. pullorum	—	++++	0	0	0	0
	Bact. sanguinarium	—	++	0	0	0	0
54	Bact. pullorum	++++	++++	++++	++++	+	—
	Bact. sanguinarium	++++	++++	++++	++++	+	—

++++, agglutination complete; +++, marked; ++, partial; +, slight; ±, doubtful; 0, no agglutination; —, no test made.

were in favor of *Bact. pullorum* infection. The owner of this flock disliked to have her birds disturbed, and we therefore hesitated to collect additional samples. At the present time, an endeavor is being made to locate the parent stock of chicks from which fowl typhoid cultures have been isolated.

DISCUSSION

The isolation of *Bact. sanguinarium* from the heart-blood of baby chicks coming from different flocks indicates that this infection is quite common in young stock. The presence of the

organism in the unabsorbed yolk of a chick five weeks old seems to indicate the possibility that this chick might have been infected through the egg. Finally, the finding of the organism in a pathological ovary of an adult hen affords a parallel to that found in white diarrhea. In order to complete the cycle of infection, it would be necessary to isolate the organism from the yolk of eggs produced by infected hens.

The data presented above show the need of careful identification of organisms isolated from baby chicks. A postmortem examination alone would be of no value in differentiating between the two infections. Furthermore, the appearance of an ovary infected with *Bact. sanguinarium* does not differ from one infected with the white diarrhea organism. The organisms causing these two infections are so closely related serologically that the ordinary agglutination test is not sufficient to differentiate between them. No doubt the agglutination test for carriers of *Bact. pullorum* would eliminate as well the fowls infected with *Bact. sanguinarium*.

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K. S. A. C. ALUMNI MEET IN PORTLAND

The graduates in veterinary medicine of the Kansas State Agricultural College, who were present at the meeting of the American Veterinary Medical Association, assembled at the banquet board in the Multnomah Hotel at 7 p. m., July 21.

The following were in attendance:

Dr. Fred M. Hayes ('08), Davis, Calif.
Dr. John E. McCoy ('09), Pullman, Wash.
Dr. and Mrs. J. R. Fuller ('12), Walla Walla, Wash.
Dr. and Mrs. Chas. W. Bower ('18), Topeka, Kans.
Dr. W. H. Hilts ('18), Elko, Nev.
Dr. L. R. Vawter ('18), Reno, Nev.
Dr. John A. Howarth ('23), Pullman, Wash.
Dr. R. R. Dykstra, Dean of the Division of Veterinary Medicine, K. S. A. C.

A large part of the program was devoted to a discussion of experiences since leaving college. Each of those present related, in an interesting manner, what he had been doing, how he was getting along, and his opinion of future prospects in the veterinary profession. The meeting closed with an expression, by each of those present, of continued loyalty to their Alma Mater.

STUDIES IN IODIN-FEEDING

II. The effect of iodin as potassium iodid when administered in varying amounts to pregnant ewes.*

By JOHN M. EVVARD, ALVIN R. LAMB *and* W. G. GAESSLER

Iowa Agricultural Experiment Station, Ames, Iowa

The fact that the deficiency of iodin in many of our natural waters and feeding stuffs sometimes causes weakness and death in new-born farm animals is well established. The phenomenon of thyroid hyperplasia in hairless pigs, goitrous lambs and calves, which occurs frequently in certain localities, may be easily prevented by the administration of small amounts of potassium iodid in the feed of the pregnant female, or by the occasional pouring of tincture of iodin on the skin of the animal. In practically all cases reported, this treatment has prevented the recurrence of hairless, goitrous, weak or dead young from this cause, although in many cases control experiments have not been run.

The relation of the presumable iodin deficiency to the hyperplastic thyroid and associated abnormalities in the new-born young and the prevention of this condition in swine by the administration of iodin have been discussed in papers by Welch[1] and by Hart and Steenbock.[2] A fairly extensive review of the literature is presented in the first paper of this series by Evvard and Culbertson.[3] They present data showing that the addition of traces of potassium iodid to the ration of growing and fattening swine, under local conditions of feed and water supply, increased the daily gain an average of about 10 per cent, and also reduced the feed requirement per 100 pounds gain about 10 per cent. This was found to be true when there was no external evidence of any iodin deficiency, and under conditions in which no hairless pigs have ever been produced. This suggests the probability of there being an attainable optimum iodin content of the ration which may have a marked influence on growth and perhaps reproduction as well, independent of the minimum amount of iodin necessary to prevent visible evidence of abnormal metabolism.

The estimation of suitable amounts of potassium iodid to be used for the prevention of goiter, or to furnish an optimum

*Reported at meeting of the Iowa Academy of Science, Ames, Iowa, May 3, 1924.

iodin content in the ration, still remains, however, on rather an empirical basis. No studies with laboratory animals which supply all the necessary data have been reported. It is assumed that the complete absence of iodin from the ration during the life of an animal would cause failure in growth or functions of the animal. Although this failure has not been directly demonstrated and goiter has not been produced experimentally in mammals, it is definitely known that under certain conditions of environment, failure in reproduction of farm animals caused by goiter may be prevented by the administration of iodin, either as the tincture or as an iodid. There may be, however, certain interrelations with other elements which change the iodin requirement, or there may exist other complicating factors. The fact also that environmental conditions can not in practice be kept constant in the case of farm animals has made it difficult to draw definite conclusions from some of these experiments.

Conflicting Results Reported

Thus conflicting results are reported in several cases, particularly in work with sheep. Kalkus[4] reports, from the Washington Station, that goitrous ewes gave birth to normal lambs and that normal ewes under similar conditions produced dead, goitrous, and woolless lambs. One of their ewes which was goitrous gave birth to a goitrous lamb in 1916 and under "the same conditions of feed and care" produced a normal lamb the following year. The 1918 ewes were fed similar rations and pastured in a goitrous region, but all produced normal lambs, both the control lot and those receiving potassium iodid.

In contradistinction to these results with sheep, Kalkus reports that iodin feeding or application of tincture of iodin to the skin gave quite uniform results in the prevention of losses due to goiter in the case of goats, where the untreated animals produced goitrous young.

Welch[1] reports only one experiment with sheep from the Montana Station. This was not controlled, except by the results of the previous year, when the flock reported lost all except about one hundred of the lambs from seven hundred ewes, because of goiter, hairlessness and weakness. In the following year iodin was fed to three hundred ewes and no goiter was reported.

The first cases, at the Iowa Station, of serious trouble with goiter in sheep, which are known to the authors, occurred in 1916-17. During that winter a group of forty pregnant ewes

was allowed a grain ration of shelled corn and corn gluten feed in varying proportions, supplemented with corn silage, timothy hay,and oat straw in equal parts, the roughage component of the ration, therefore, being the same for all lots. Each of the four groups of ewes in this experiment produced a number of goitrous lambs. In lot I, in which the grain ration was shelled corn alone, 28 per cent of the lambs produced were goitrous. Lot II, which received equal parts of shelled corn and corn gluten feed, produced 43 per cent of affected lambs. Lot III, on shelled corn 75 parts, gluten feed 25 parts, produced 58 per cent, and lot IV, on gluten feed alone, produced 40 per cent of goitrous lambs. The total number of lambs produced by the 40 ewes was 55, of which 23 were noted at birth as showing a noticeable enlargement of the thyroid.

While this was the first year in which this difficulty was recorded at the Iowa Station, it was serious enough to demand investigation and experimental treatment of the breeding ewes during the following winter, using the same feeds as far as possible. The feeds used in the above experiment were analyzed for iodin, with negative results in all cases, except for the corn gluten feed, which was found to contain 0.00011 per cent of iodin. The method used was that of Kendall.[5] The iodin content of the local water-supply from wells has been reported by McClendon as 0.012 parts per billion. Therefore, the presumption that there was an iodin deficiency in the ration is reasonable, even though, as suggested above, some other factors may also operate in bringing about the goitrous condition.

Iodin-Feeding Experiment

The ration which was fed in the following year's experiment (1917-18) was as follows: shelled corn, 0.25 lb.; corn gluten feed, 0.75 lb.; corn silage, 2 lbs.; timothy hay, 0.5 lb.; oat straw, 0.65 lb.; and rock salt *ad libitum*. All of these feeds, including the rock salt, were of the same supply as used in the preceding year's experiment, except the corn grain and corn silage. Unfortunately the iodin content of these two feeds was not determined. Except for the difference just noted all experimental conditions were kept as nearly as possible like those of the preceding year.

Iodin in the form of chemically pure potassium iodid was added to the basal ration, which was the same in composition and amount in all lots. The iodid allowances, beginning after a 30-day preliminary period, were as follows: lot I, none; lot II,

5 grains daily per head; lot III, 15 grains; lot IV, 30 grains. After the next 12 days, during which this heavy allowance of iodid caused considerable trouble in lot IV in getting the ration completely consumed, the allowance of potassium iodid was decreased by one-half, so that lot II was allowed 2.5 grains daily per head, lot III, 7.5 grains, and lot IV, 15 grains. The difficulty in securing consumption of the iodid as mixed with the grain feed persisted, however, particularly in lot IV and, to some extent, in the other lots. The average daily consumption of the potassium iodid was thereby decreased still more and, at the end of the experiment, was found to have been as follows: lot II, 2.02 grains; lot III, 6.09 grains; lot IV, 5.66 grains.

These allowances of potassium iodid were still rather large for normal nutrition, even during the limited period of gestation, but the effects to be noted below are nevertheless of interest. In this connection it may be noted that one of us has fed larger proportionate allowances of potassium iodid than the above to young, growing rats throughout their growth. The effect on reproduction has not yet been noted.

Results of Iodin Feeding

With the exception of the effect on the appetite of the ewes, which was noted above, no effect of the iodin-feeding was observed during the gestation period. The number of young produced in each lot was about normal. There was no palpable goiter observed in either the ewes or the young at any time during the experiment, although the animals were frequently examined for such condition.

The fact that no goiter occurred in the control lot during this particular year may be due to one or more of several causes. It is practically impossible to control experimental conditions so completely that they may be exactly duplicated a year later. The college water-supply may possibly have varied and, as stated above, the corn grain and corn silage unavoidably came from a different source. Furthermore, there may be other factors concerned in the etiology of goiter beside the mere iodin deficiency, thus bringing about the disease more readily under certain conditions than under other conditions of environment, feeding, etc.

There is no evidence, therefore, that the iodin-feeding in this experiment prevented a recurrence of the fatalities due to goiter in the previous year's experiment. Some valuable results were

obtained, however, on the possible adverse effects of feeding too much iodin under these conditions.

From this point of view it is important to note the striking difference in the vigor of the new-born young, which is shown in table I. The number of young produced in lot I was 14; lot II, 14; lot III, 13; and lot IV, 15. The percentage born dead, if any, is also shown.

TABLE I—*Vigor of new-born lambs (percentage of total number)*

	Lot I	Lot II	Lot III	Lot IV
Very strong	50	21	..	20
Strong	50	43	23	40
Medium	..	29	46	7
Weak	..	..	..	7
Very weak	..	7	8	7
Dead	..	..	23	20
Average percentage of perfect vigor	90	74	48	60

The animals in this experiment were kept under identical conditions, and fed the same ration in composition and amount except for the potassium iodid. The results shown above therefore appear to be marked evidence of too large an iodin allowance in lots II, III, and IV, even if there were no other data to substantiate the observation. There is further evidence, however, in the fact that the total losses of lambs at parturition and during the suckling period from all causes were as shown below, expressed in percentage of the total number of lambs.

Lot I	Lot II	Lot III	Lot IV
7	43	92	80

The mortality of the young is in direct proportion to the amount of iodin fed. The failure to secure consumption of the potassium iodid was responsible for the fact that lot IV received less iodid than lot III. This is shown in table II, which is here introduced to show this point and other general data.

The effect of the potassium iodid on the water consumption was apparently to increase it, although the common salt eaten was at the same time decreased by 13 per cent to 23 per cent in the iodin-fed lots. These effects are probably correlated to some extent with the effect of the potassium iodid on the appetite, which was noted above. On the basis of the dry matter in the ration, the increase in water consumption in lot II over the control was from 2.57 to 2.74 pounds of water per pound of dry mat-

TABLE II—*Summarized data on the gestation period (averages per ewe per day)*

LOT	NUMBER OF EWES	DAILY GAIN (LBS.)	KI CONSUMED (GRAINS)	SALT CONSUMED (LBS.)	TOTAL FEED CONSUMED (LBS.)	WATER CONSUMED	
						AS WATER (LBS.)	IN FEED (LBS.)
I	9	0.19	....	.046	4.15	4.77	1.66
II	9	0.22	2.02	.035	4.20	5.33	1.66
III	9	0.23	6.09	.036	4.15	5.19	1.66
IV	9	0.18	5.66	.040	4.13	5.12	1.66

ter consumed by lots I and II respectively. This is considerable, in view of the decrease noted in salt consumption. The increase in water consumption was not so great in lots III and IV, but was appreciable.

From table II it may also be noted that the differences in gains and in feed-consumption were not marked. There was a slight increase in the gains of two of the iodin-fed lots, but the standard deviations of the individual gains in these lots indicate that these differences are of little significance, especially in the light of our observations on the mortality of the young. The mortality of the young after birth, coincident with the mortality in the other iodin-fed lots, suggests that an unfavorable effect was present even in lot II, decreasing the resistance of the lambs to disease.

RELATION OF MORTALITY TO IODIN-FEEDING

Many of the deaths among the lambs during the suckling period were due to an epizootic of hemorrhagic septicemia, an infectious disease. All lots were attacked, and the exposure was presumably of the same degree in all lots, as they were in rather small pens, all under the same shelter. The total number of lambs produced was 56, of which 49 were born alive, and the total number of deaths from disease was 24. Of this number at least 16 died of hemorrhagic septicemia, the heaviest losses from this disease as well as other diseases falling in the lots receiving the most iodin. Treatment with vaccine by the Veterinary Division of the Iowa State College did not entirely check the losses.* It is significant that there were no losses in

*We are indebted to Dr. Chas. Murray for his cooperation in the diagnosis of the disease and the treatment of these animals.

lot I from any disease. The only lamb lost in this lot was accidentally killed. The conclusion is almost inescapable that the potassium iodid, which was the only experimental variable, decreased the resistance of the young to disease.

The vigor or weakness of the young at birth, as shown in table I, shows a definite correlation with the amount of iodin fed. Another factor, namely, the secretion of iodin into the milk, entered at this point. About 75 per cent of the deaths were within two to six days after birth. Several of these lambs were quite strong at birth, but began to show lassitude and weakness soon after suckling the first time, and generally succumbed within a few days. The iodin-feeding to the ewes had been dis-

TABLE III—*Iodin in milk of ewes*

	LOT I %	LOT II %	LOT III %	LOT IV %
Colostrum samples.....	none	0.00567	0.00472	0.00669
	0.00096	0.00273	0.00330	0.00485
	trace	0.00478	0.00356	0.00772
	none	0.00328	.....	0.00528
	.....	.....	.....	0.00285
Mean	0.00024	0.00411	0.00386	0.00548
5 days after parturition..	none	none	0.00049	0.00381
	none	0.00139	0.00969	0.00353
	trace	0.00049	0.00474	0.00651
	.....	0.00153	.....	.....
Mean.....	0.0	0.00085	0.00497	0.00462
15 days after parturition.	none	none	none	none
	trace	none	0.00196	none
	trace	none	none	none
Mean.....	0.0	0.0	0.00065	0.0

continued when the young were born, but the iodin continued to be excreted until the excess had been eliminated. Samples of the milk of a number of the ewes, taken the first day, 5 days, and 15 days after parturition, showed that iodin was present in considerable amounts in the first two samples. The iodin content of the milk samples is shown in table III. The milk was taken successively from the same ewes, except that the later samples did not always include all the ewes whose colostrum had been sampled.

The elimination of iodin in the milk is practically complete in 15 days, and shows fair correlation in this limited number of samples with the amount of iodin fed the various lots, although

the amounts found in the milk of different ewes varied somewhat.

The unfortunate mortality of the young described here emphasizes the necessity of very careful regulation of iodin-feeding. The control of experimental conditions with farm animals is not possible to the degree that it is with laboratory animals. Therefore, some of the problems connected with the determination of the optimum amount of iodin to be fed and the prevention of goiter will need to be worked out with laboratory animals. This work is now in progress.

It should be noted that no evidence of "iodism" from too much iodin was found in the mature animals. As is commonly observed in nutritional experiments, the first effect of an incorrect condition in the ration was upon reproduction. In this case the effect on the young was apparently unfavorable, both in the intrauterine and in the suckling period. The good condition of the ewes both before and after this experiment and the performance of the control lot during the experiment practically exclude disease or any other cause for the failure in reproduction outside the ration fed.

As an evidence of the health and general condition of the ewes the records of wool production for the season are here presented. The average weight of wool produced by the ewes of the four lots was as follows:

Lot I	Lot II	Lot III	Lot IV
(lbs.)	(lbs.)	(lbs.)	(lbs.)
8.20 ± 0.22	8.08 ± 0.15	8.84 ± 0.19	8.07 ± 0.13

There was apparently no difference in the wool yield which may be ascribed to the iodin-feeding. As far as can be determined with any degree of certainty, the ill effect of the iodin-feeding was on the reproductive function only. There was no iodin found in composite samples of the wool from these ewes.

Prevention of Goiter

Evidence has appeared in our later work with breeding ewes that the feeding of potassium iodid has prevented goiter which would otherwise have appeared in the young. During the winter of 1923-24 all lots received a basal ration of corn grain, corn silage, linseed oil meal, soy-bean hay and salt. Lots II, III and IV received various mineral mixtures, each of which contained potassium iodid. No goiters occurred in these lots, but in the control lot, which received no added iodin, four

goitrous lambs appeared, one of which was born dead and another died soon after. Two lambs with small goiters recovered and survived, the goiters disappearing during the suckling period.

In the following year, the basal ration fed to practically the same flock of ewes during the gestation period was corn grain, oats, linseed oil meal, alfalfa hay, corn silage and common salt. In this experiment only one lot received a mineral mixture containing potassium iodid. There was no goiter in the lambs produced in this lot, but each of the other lots produced goitrous lambs (lot I, three; lot II, two; lot III, one). Of these six cases only one survived. The allotment of the ewes was different than in the preceding year's experiment, i. e., all had been placed in one flock during the summer and redistributed, after breeding, into four lots. This further checks the preventive influence of iodin-feeding on goiter and furnishes some light on the optimum amount of potassium iodid to be fed to sheep.

The amount of potassium iodid consumed by the ewes in the two experiments just reported, depending on the amount of mineral mixture consumed, was about one-half to one grain per week.* This is much less than in the earlier experiment reported in this paper, when the minimum allowance was two grains per day, with heavy mortality in the young. No unusual losses of young lambs have occurred since the experiment reported above, in which the high amount of iodin was fed. On the contrary, using smaller amounts of iodin, we have been fortunate enough to obtain clear evidence of the value of small doses of iodin in the prevention of goiter in the young.

SUMMARY

The optimum iodin content of rations is not known, and iodin deficiency is still corrected on a somewhat empirical basis. Conflicting results have been reported on the effect of the administration of iodin to sheep.

After serious trouble had been experienced with goitrous lambs in 1916-17, varying amounts of potassium iodid were fed to the same flock of experiment ewes the following year. The ration used was the same except that the shelled corn and corn silage came from different sources.

No goiters occurred in the control lot, but the three iodin-fed lots, which received from 2 grains to 6 grains per day of potassium iodid, showed marked unfavorable effects of the iodin. The

*32 to 65 mgms.

ewes were apparently unaffected, but the vigor of the lambs and the mortality from disease during the suckling period was adversely affected, in direct proportion to the amount of iodin fed. The mortality of the young was from 43 per cent to 92 per cent in the iodin-fed lots, and no deaths, except one from an accident, occurred in the control lot.

The elimination of the iodin in the milk of the ewes was practically complete in 15 days after iodin-feeding was discontinued. No iodin was found in the wool.

Later experiments in which only one-half to one grain of potassium iodid per week was fed demonstrate the prevention of goiter, which occurred only in the lots receiving no iodin.

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CONVENTION NOTES

Dr. D. E. Baughman, president of the Fort Dodge Serum Company, was among the few Iowans at the convention.

Dr. J. C. Hargrave, of Medicine Hat, Alberta, served on the Executive Board during the meeting, representing District No. 1 in the absence of Dr. George Hilton.

Dr. and Mrs. S. E. Hershey, of Charleston, W. Va., motored all the way to Portland.

Dr. W. Runge, of Newark, N. J., kept up his record of attendance. He accompanied the A. V. M. A. party on the Oriental Limited.

Dr. T. E. Munce was the only state veterinarian present from east of the Mississippi River. There were twelve present from the western states.

Dr. E. E. Patterson, of Detroit, Mich., was about the best chaperoned man at the meeting. He was accompanied by his wife, his daughter, and his daughter-in-law. The party returned home via California.

A NEWLY RECOGNIZED FLUKE DISEASE (PROSTHOGONIMIASIS) OF FOWLS IN THE UNITED STATES

By A. KOTLAN *and* W. L. CHANDLER

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About four years ago Hyeronymi and Szidat (1921) reported the first case of a fluke disease in chickens due to a new species of the genus *Prosthogonimus* (*P. intercalandus* Szidat) which was found in the female genital tract (oviduct). According to this report serious losses were caused by this disease, especially in certain parts of Germany. The pathological lesions consisted of a more or less severe inflammation of the oviduct and of a pronounced peritonitis.

Since that time not only new cases of this disease have been reported from different parts of Germany (Bittner, Leyfried and others), from Holland (De Blieck and van Heelsbergen, 1922) and from France (Panisset, 1924), but also a number of new species of *Prosthogonimus* have been described as the cause of this disease.

In Europe the disease as well as the occurrence of these parasites seems to be confined to certain countries in which special local conditions (lakes, marshy places) are favorable for the development of flukes and for the infestation of fowls. Some countries in Europe, though similar topographical conditions are present, are as yet free from these flukes or from this disease, *e. g.*, Hungary. In Hungary one of us (Kotlan) was looking particularly for these parasites during the last four or five years, without being able to discover a single case of this disease or of the presence of these flukes in the oviduct in chickens.

In the United States[1] one of us (Chandler) discovered these flukes four years ago in the oviduct of a wing-pinioned mallard duck, coming from Duck Lake, in the vicinity of Muskegon, Michigan. In this case pronounced pathological lesions were present in the abdominal cavity and oviduct.

Recently a chicken from the ranch from which the mallard duck was obtained was sent to the Bacteriology Department at

[1]Flukes belonging to the genus *Prosthogonimus* are frequently to be found in the bursa fabricii of different birds; furthermore, species of this fluke have been recorded from hen eggs on a number of occasions. In the United States one case (Linton, 1888) is reported from Berlin, Wisconsin; another is known from Minnesota. The writers are indebted to Dr. M. C. Hall, of the Bureau of Animal Industry, Washington, D. C., who called their attention to these data.

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Michigan State College, East Lansing, with the report that during six or seven weeks about twenty-five birds showing the same symptoms had been lost. According to this report, the birds were kept on the shore of a small lake (Duck Lake) and had free access to the water in which different insects, snails, frogs and the like are present in abundance.

On postmortem examination of this chicken the following pathological changes were found: heavy emaciation and anemia; fibrinous peritonitis, with a large amount of a sticky, yellow exudate, containing large masses of egg-yolk and albumen material; a number of red-colored, live flukes were found in the exudate. The ovary showed a number of diseased, collapsed ovules, containing grayish-yellow, egg-yolk-like material mixed with filbrin and pus. Some of the ovules were apparently ruptured. The oviduct was greatly distended, its serous coverings showing a more or less pronounced reddish discoloration. The lumen of the oviduct contained a large amount of albumen material forming ovoid clots of about one to two centimeters in diameter; the mucosa was covered with a sticky exudate consisting in the main of albumen, blood and fibrin.

On certain parts of the mucosa small hemorrhages were seen. On all parts of the mucosa red-colored flukes, about fifty in number, were present. Several specimens of these flukes were found surrounded by albumen material; the larger albumen masses also contained flukes some of which were still living. The kidneys of the bird were enlarged and of a peculiar reddish-yellow color. The intestines showed a marked catarrhal condition and contained about thirty specimens of another genus of fluke (*Echinostonium*) and numerous roundworms (*Ascaridia*). All other organs appeared normal.

The bacteriological examinations, both microscopical and cultural, were negative. The flukes which were found in the abdominal cavity and oviduct were identified as belonging to the genus *Prosthogonimus* and appeared to be closely related to if not identical with *P. intercalandus* Szidat 1921. The size of our fluke and certain peculiarities concerning the body spines as well as a peculiar feature (terminal spine) of the eggs, also the arrangement of the vitelline glands, do not, however, entirely agree with the description given by Hyeronymi and Szidat. So that, at the present time, we are unable to state whether we are dealing with Szidat's species, or with one of the other known species or a new species of *Prosthogonimus*.

On finding these flukes in the mallard duck in 1921, and recognizing the pathological significance of the infestation, a trip was made to the Duck Lake farm, from which the bird came, for the purpose of attempting to determine the extent of the infestation and to attempt to locate a possible intermediary host. A chicken killed and examined at the ranch failed to reveal any trace of these flukes; also an examination of the droppings from two other mallard ducks with pinioned wings failed to reveal the eggs of this fluke. It was, therefore, thought that the infestation had not become established in this locality, but was imported in the mallard duck in question.

With the recent discovery of these flukes in the chicken, however, it was evident that the fluke had at last established itself at Duck Lake. We, therefore, visited the place where the examined bird came from. There we found six more sick birds; these were kept separated from the rest of the flock. One of the sick birds was killed and a postmortem examination immediately made. In all particulars exactly the same conditions and lesions as were found in the first bird were found in this bird; except perhaps that the flukes in the abdominal cavity and in the oviduct were more numerous (about one hundred specimens in all) and that most of them represented younger though mature forms. In this bird, however, no lesions were found in the kidneys.

Three birds from the six sick ones were brought, in living condition, to the laboratory for further examination.

All these birds were very light, showed a marked dullness and sometimes a slight somnolence. Their appetite was not good. One of these birds, showing the most pronounced symptoms of a diseased condition, was killed on May 20. On postmortem examination the following lesions were found: extreme emaciation, anemia and pronounced fibrinous peritonitis. A few larger clots of albumen substance were present in the abdominal cavity which, however, contained no exudate and no flukes. The ovary showed a number of very small, inactive and four or five larger, collapsed and seemingly ruptured ovules, containing a grayish-yellow, sticky, yolk material. The oviduct was somewhat distended; its walls showed signs of peritonitis. In the lumen there were ten comparatively very large, fully mature flukes exhibiting the characteristic shape and reddish color. The kidneys were of normal size; they were, however, mottled and friable.

No particular lesions were found in the other organs except that the heart as well as the gizzard were extremely flabby.

The bacteriological examinations were negative, as in the first case. The microcsopic examination of the contents of the ovarian ovules, as well as of the cheesy masses coming from the oviduct and abdominal cavity, revealed a large number of fluke eggs, unquestionably belonging to the species of fluke present.

FIG. 1. Enlarged photograph of Prosthogonimus species.

Very interesting, chronic lesions were found in one of the two remaining birds. This bird was extremely emaciated and anemic. The abdominal cavity contained large masses of cheesy material. There was a severe, chronic peritonitis. The oviduct (see figure 2) was greatly distended and packed with albumen masses. The mucosa was pale, very thin and atrophied. Curiously enough, but a few (four or five) very small, young flukes were

present in the oviduct. The cheesy material, however, both that found in the abdominal cavity and that in the oviduct,

FIG. 2. Internal organs of chicken infested with Prosthogonimus species. a, albuminous clots in oviduct; b, albuminous clot in peritoneal cavity; I, intestines; H, heart.

was entirely filled with fluke eggs. From this observation it is apparent that this bird had had a heavy fluke infestation, but possibly due to the pathological conditions (excessive albumen

material and the like) of the oviduct or to the age of the flukes, the flukes had died, leaving the albumen material filled with eggs.

It is worth while to note that no fluke eggs could be found in a number of samples of feces taken from any of the three birds under observation, though they harbored mature flukes. Scrapings taken from the mucosa of the oviduct showed but a few eggs. It therefore seems probable that the eggs laid by the flukes in the oviduct stick to the albumen clots which, owing to the peristaltic movements of this organ, increase in size, incorporating in this mass all or most of the fluke eggs present in the oviduct. By means of an antiperistaltic movement fluke eggs or smaller albumen masses containing the eggs are carried to the ovary causing an irritation and finally the diseased condition. This is borne out by the fact that the diseased ovules contain, as mentioned before, a comparatively very large number of fluke eggs.

Description of the Flukes

There seems to be no doubt about the fact that the flukes found in the mallard duck (Chandler's case) are identical with those found in chickens from the same locality.

In general the flukes are pear-shaped and of a reddish color when alive. Very young and very old specimens are flesh-colored. Living specimens found in the oviduct are frequently elongated, showing an almost uniform width throughout. Some specimens are, however, frequently contracted and show a more or less spherical shape. The size varies a great deal; we found specimens which, even after being compressed, measured not more than 2 mm. in length and yet contained mature eggs in the uterus. Other specimens were as much as 10 mm. in length by 5 mm. in width. In general the average size of all specimens examined was about 6 mm. in length and 3 to 4 mm. in greatest width. The body is entirely covered by spines which are very easily detected in living specimens and are still seen in many mounted specimens; however, the spines are often so retracted as to be obscured in mounted specimens; then, too, they are very easily lost; and in partially macerated material they may be entirely absent.

The two suckers differ in size in most specimens; the oval sucker averages 0.46 mm. in diameter. The ventral sucker, which, in a specimen about 6 mm. in length, is at a distance of

about 2 mm. from the anterior end of the body, measures 0.8 mm. in diameter. The pharynx is 0.2 mm. in diameter, while the esophagus measures about 0.4 mm. in length. The ceca extend almost to the posterior end of the body.

The testes are situated on either side of the median field in the first part of the posterior half of the body. In some specimens, however, they may be found situated even in the middle part or quite posteriorly. They are of oval shape, their surface is for the most part smooth in outline. Their size differs greatly in different specimens. In general they measure from 1.0 to 2.5 x 0.7 to 1.0 mm. in diameter. The cirrus sac is situated on the left side of the esophagus and reaches the branching of the intestine. It is spindle-shaped, without pronounced coils. The male genital pore lies close to the left side of the oval sucker.

The ovary is situated in the median field or sometimes to the right of the median line postad of the ventral sucker. It consists of about ten to twelve small, slightly elongated lobes. The vitelline glands are in most specimens arranged in the lateral field and each gland is composed of from four to six distinct lobes, each consisting of a number of branches. The glands extend on both sides from the center of the ventral sucker about to the middle of the testes. Rarely it seems that the right vitelline gland extends a little further posteriorly than the left, in which case it is composed of a larger number of lobes. The uterus is situated mainly in the posterior half of the body; its coils are numerous and wide in fully mature specimens. The female genital pore lies close to the male pore. The eggs are caped, somewhat broader on the anterior end than on the posterior, where a small, sometimes recurved terminal spine is to be found. The eggs are of from 27 to 30 μ in length and 15 to 16 μ in width.

There are at the present time at least eleven species of *Prosthogonimus* described from domestic birds. Whether all of these represent "good species" is much to be doubted. Our specimens agree, as mentioned above, fairly well with *P. intercalandus* Szidat. This species, however, seems to be identical with *P. pellucidus* v. Linstow, representing younger though mature specimens which have lost their body spines.

A re-examination and a comparative study of all *Prosthogonimus* species will be necessary before we can definitely determine

the systematic position of the worms found in our cases from Michigan.

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CANADIAN VETERINARIANS AT PORTLAND

The following veterinarians from Canada got acquainted with one another at a banquet at the Hotel Multnomah, during the recent meeting of the A. V. M. A., at Portland, Oregon:

Drs. J. G. Jervis, J. C. Hargrave, T. B. Harries, M. Barker, H. Keown, M. Sparrow, T. H. Jagger, T. E. Sleeth, K. Chester, M. L. Olsen, Alex. Findlay, W. Graham Gillam, A. J. Damman, F. H. S. Lowrey, E. A. Bruce.

After being made acquainted with one another by the chairman, who briefly touched on the nature of the work each one was doing, short speeches were made by Drs. Hargrave, Jervis, Barker, and Olsen.

Drs. C. D. McGilvray, J. B. Still, W. A. Henderson, and H. A. Eckert, who were at the meeting, were unavoidably detained elsewhere, otherwise they would have been present also.

KENNETH CHESTER, *Chairman.*

PENNSYLVANIA ALUMNI AT PORTLAND

Eleven graduates of the University of Pennsylvania Veterinary School had dinner together at Portland, Alumni Night, July 21, during the recent A. V. M. A. meeting. Those present were:

Dr. J. P. Bushong ('06), Los Angeles Calif.
Dr. Edw. A. Cahill ('09), Indianapolis, Ind.
Dr. J. G. Hardenbergh ('16), Rochester, Minn.
Dr. H. Preston Hoskins ('10), Detroit, Mich.
Dr. M. Jacob ('99), Knoxville, Tenn.
Dr. John R. Mohler ('96), Washington, D. C.
Dr. T. E. Munce ('04), Harrisburg, Pa.
Dr. Edward Records ('09), Reno, Nev.
Dr. E. L. Stubbs ('11), Philadelphia, Pa.
Dr. A. J. Whitaker ('18), Mantua, Calif.
Dr. Jos. J. Zilligen ('06), Los Angeles, Calif.

The following additional Pennsylvania alumni were in attendance, but arrived too late for the dinner:

Dr. T. B. Harries ('09), Strathmore, Alta.
Dr. W. B. Henneberger ('06), Walla Walla, Wash.
Dr. N. L. Towsnend ('99), Topeka, Kans.

DANGEROUS MICROBIAN IMMIGRANTS*

By J. R. MOHLER, *Washington, D. C.*

Chief, U. S. Bureau of Animal Industry

According to the latest estimates, there are on the farms of this country, approximately 17½ million horses, 5½ million mules, 65 million cattle, 39½ million sheep, and 54½ million hogs, valued at over five billion dollars. In addition to the animals on farms, there are in the United States over two million head each of cattle, swine, horses, and mules, and about one-half million sheep. This vast animal population gives the United States first rank among the stock-producing nations of the world, and we may justly be proud of our 8-billion-dollar live stock industry. It equals in value our combined iron and steel industries, and is more than twice as large as our lumber industry. But it is not only the magnitude of the industry that gives us cause for pride; we are producing purebred stock that compares very favorably with the best animals bred in countries much older than ours. It is pleasing and encouraging to visit the live stock shows at Chicago, Kansas City, and other live stock centers, where are assembled the choicest animals of different species, some of which would win prizes in any showring in the world. And the regular attendant at these shows cannot help but notice from year to year an increase in the number of animals of finest quality. This gradual improvement of our purebred stock is being reflected to our live stock in general, as more and better grade stock is being produced.

With the increase in the value of live stock, responsibilities of live stock sanitary officials in protecting the industry are becoming greater and more varied in character. At the same time, conditions are developing which make their work more difficult. The increase in number and growth of towns and cities leads to the concentration of animals, especially dairy cattle, with the result that many are kept in insanitary places and deprived of exercise and freedom while they are being fed heavily for increased milk-production. Such conditions are conducive to the rapid spread of diseases and, as they also decrease the vitality of animals, disease becomes correspondingly more destructive.

* Read before the Western States Live Stock Sanitary Association, Portland, Oregon, July 20, 1925.

The custom of driving animals to small local markets has given way to rapid transportation by rail and automobile truck. The expansion of transportation facilities has resulted in the establishment and development of large market centers, where animals from various sections of the country are assembled and, in the course of trading, they are again shipped long distances to other sections of the country. Our transporation facilities and large markets, where animals mingle together in pens, chutes, and alleys, also present ideal conditions for the rapid dissemination of disease, as was shown in 1914, when foot-and-mouth disease was spread from the Chicago stockyards to twenty-two states and the District of Columbia within thirty days. Under present conditions, an animal in the incubative stage of disease may be transported to a distant state and placed with healthy animals before the disease becomes apparent.

Two Hundred Million Dollars Lost Annually

Compared with the old countries of the world, we have been inclined to boast of the health of our domestic animals, but there is no doubt that our losses from disease are far greater than they should be, even under the present methods of stabling, feeding, and trading. It has been estimated that the losses in the live stock industry from disease, neglect, and injuries amount to the enormous sum of $200,000,000 annually, which is four times as much as it should be, considering the knowledge we have of animal diseases and sanitation and the means that have been developed for combating disease.

It has been estimated that hog cholera kills from 30 to 50 million dollars worth of hogs each year, although a preventive serum is available.

Tuberculosis is responsible for a loss to the live stock industry of from 35 to 40 million dollars annually, although nearly all of our cattle owners know that the application of the tuberculin test will show them which animals are tuberculous and which are free of the disease.

The southern cattle tick continues to draw from 20 to 30 million dollars annually from the live stock industry, while nearly every cattle owner in the South knows how to eradicate ticks. To date, we have eliminated ticks from about 70 per cent of the originally infected area.

The mites that cause sheep and cattle scabies are visible to the naked eye, but scabies causes our sheep and cattle owners

a loss of from 2 to 4 million dollars each year. Before the Bureau began to cooperate with the states in scabies eradication work, the losses were at least ten times as great.

Dourine threatened our horse industry several years ago, but through the application of blood tests, we were able to pick out the carriers of the virus and destroy them, thus reducing the loss from this disease from one million dollars to not more than ten thousand dollars annually, and it is expected that within the next two or three years, this disease will be completely eradicated.

Glanders was responsible at one time for from one to three million dollars loss annually to the horse and mule industry of the United States. While this disease has not been entriely eradicated, the use of mallein in detecting it has resulted in decreasing the losses to less than one-hundredth of what they were.

Anthrax and blackleg together destroy in the neighborhood of eight million dollars worth of our cattle and sheep each year. The development of prophylactic treatment of these diseases with vaccines, filtrates, and aggressins has reduced the losses more than 60 per cent.

Equine Influenza Takes Heavy Toll

The prevalence of influenza results in damage to the horse and mule industry of approximately 20 million dollars annually, but it is being reduced gradually as our horse owners and shippers come to appreciate more the importance of sanitation and good care in feeding. Bacterins have been used with varying degrees of success in handling this disease.

Hemorrhagic septicemia is credited with robbing our live stock industry of from 15 to 20 million dollars each year, but the prospects seem encouraging that we shall be able to reduce this sum materially through the use of the aggressin treatment which was developed recently by the Bureau of Animal Industry.

One of the most baffling of our animal diseases at present is contagious abortion, which is credited with causing losses of from 20 to 30 million dollars annually. Vaccines are used with some success, but we have not yet conquered this enemy of the breeders of live stock.

Added to the losses from contagious and infectious diseases, we have those resulting from sporadic diseases, poisonous plants, parasites, wounds, and neglect, which together amount to a

large sum. Plant poisoning is credited with causing 20 million dollars loss each year, and parasites cause even greater losses.

With the rapid development of prophylactic treatments, better methods of controlling parasites, improvement of sanitation and feeding methods, and the bringing of live stock men to appreciate more the importance of care in shipping and handling animals, we should be able to reduce materially the losses from the diseases that are indigenous to this country, but we are in constant danger of invasion by foreign plagues, which are even more destructive than those that we now have. With the growth and expansion of our international trade, this danger becomes more and more imminent.

Among the foreign diseases which are most dreaded are the filtrable-virus diseases, including African horse-sickness, contagious pleuropneumonia, rinderpest, and foot-and-mouth disease. Among the protozoan diseases, East African Coast fever, nagana, surra, and mal de caderas are the most important. Each of these diseases has a history that would make it a very undesirable immigrant.

Protection Against Foreign Plagues

An important function of the Bureau of Animal Industry is the administration of laws and regulations for the protection of our domestic live stock against diseases of foreign origin. Most countries of the world with which we are engaged in active trade relations are contending with one or more serious animal plagues. This makes necessary the exercise of every possible precaution on the part of this Government in order to prevent the introduction into the United States of foreign diseases through the media of animals, animal by-products, and feeding materials.

The Act of Congress approved August 30, 1890, prohibits the importation of neat cattle, sheep, and other ruminants and swine which are diseased or infected with any disease or which shall have been exposed to such infection. This act forms the basis in part for regulations of the Department of Agriculture governing the importation of domestic live stock. To assist in the administration of these provisions, certain ports of entry are designated on our coasts and international boundaries through which animals must be entered. Inspection is maintained at the ports of entry, and three of them on the Atlantic seaboard, namely, Boston, New York, and Baltimore, are equipped with

quarantine stations maintained especially for the reception and care of animals which are subject to quarantine as a prerequisite for entry.

It is required that any persons contemplating importation of ruminants and swine into the United States from any part of the world, except Canada, and except by land from Mexico, must first obtain a permit from the Secretary of Agriculture. This gives the Department immediate control over the importation of animals. Permits are refused for the importation of cattle or other domestic ruminants and swine from countries where destructive foreign diseases exist. Permits are issued in two sections, one for presentation to the American consul at the foreign port of shipment, and the other for delivery to the Collector of Customs at the United States port of entry. Animals for which permits have been issued are inspected by Bureau veterinarians upon arrival at the port of entry in the same manner as the physicians of the Public Health Service inspect human immigrants and, if found free from disease and otherwise meeting the requirements of the regulations, they are allowed to land and proceed to a designated quarantine station, where they are held for a specified period.

Imported Animals Closely Scrutinized

In addition, all ruminants and swine for importation into the United States from any part of the world, except Canada, Mexico, Central America, and the West Indies, must be accompanied by a certificate from the Chief Government Veterinary Officer of the country of origin, stating that the country he represents is free from serious diseases of live stock, including foot-and-mouth disease, rinderpest, contagious pleuropneumonia, and surra. Also affidavits of the seller and of the importer must accompany the animals, showing that our requirements in regard to avoiding exposure to contagious diseases in handling and shipping have been obeyed. All imported horses are quarantined on arrival in the United States and subjected to blood and other tests, unless accompanied by satisfactory health certificates.

We have more drastic regulations than any other country covering the importation of hides and skins, wool, hair and bristles, glue stock, bones, hoofs and horns, animal fertilizers, animal manure, hay, straw, forage, mill feed and similar materials, including hay and straw used as a packing for merchandise.

We are aided by American consuls in foreign countries in administering the regulations governing the importation of these products. Where freedom from infection cannot be established, either through a satisfactory certificate as to non-exposure or disinfection, then animal by-products are permitted admission into this country only on condition that they are handled and disinfected under suprevision of our inspectors after arrival in the United States; while feeding materials are subject to a quarantine of 90 days, in addition to such other precautionary measures as may be prescribed by the Bureau. Hay and straw packing-materials, from countries infected with foot-and-mouth disease, must either be disinfected in a prescribed manner prior to shipment or be destroyed or disinfected after arrival in this country.

A Clean Record

It is regarded as an outstanding achievement of the Bureau of Animal Industry that, since its establishment in 1884, none of these destructive foreign diseases has gained entrance to the United States in the bodies of imported animals, nor have we been able to trace any outbreak to any of the by-products specified.

In 1843, contagious pleuropneumonia did enter this country, concealed in the body of a ship's cow, which was sold by the captain of the S. S. Washington to a dairyman whose dairy was located near South Ferry, New York City. The presence in this country of that undesirable microbian immigrant resulted in the closing of our best foreign markets against export cattle, sheep, and swine from the United States. The necessity of organized effort under the direction of the National Government to eradicate the disease, in order to regain our foreign markets, hastened the establishment of the Bureau of Animal Industry to take charge of the eradication work and other duties.

Foot-and-mouth disease appeared in this country on several occasions, but it has been eradicated each time. The most important outbreaks occurred in 1902, 1908, 1914, and 1924. In tracing the 1908 outbreak, it was found that the infection was carried to us in smallpox vaccine, imported from the Orient, which was contaminated with foot-and-mouth disease, and facts indicate that in all probability the 1902 outbreak originated from the same source. As a result of this discovery, the Virus-Serum-

Toxin Act of 1913 was passed by Congress to give the Department of Agriculture control over the importation of biological products.

The origin of the 1914 outbreak was never definitely determined. Regarding the source of the 1924 California outbreak, there is strong evidence that the infection was introduced from China in garbage or other refuse from a naval vessel which docked at the Mare Island Navy Yard in San Francisco Bay. The disease first appeared nearby among hogs, the owner of which held the Navy Yard garbage contract from the Commandant. Acting on this assumption, steps were taken immediately, by the Secretary of the Navy, for the proper disposal of all garbage and refuse from vessels which have recently been in foreign waters.

The 1924 Texas outbreak of foot-and-mouth disease was in no way connected with the previously existing outbreak in California. The Texas infection first appeared among cattle on a ranch where private aviators landed with contraband goods. These goods bore South American labels, and were packed in hay, to which the cattle which contracted the disease had access.

Narrow Escape from Surra

Perhaps we have never faced greater danger of introducing a foreign animal scourge than in 1906, when surra was discovered in an apparently healthy shipment of Zebu cattle from India, while they were being held in quarantine on an island in New York harbor. Though inexperienced in handling surra, the disease was discovered and prevented from reaching the animals on the mainland. If these infected Brahman cattle had reached their destination in Texas, the disease might have become permanently established in the United States. Secretary James Wilson stated that the appearance of this foreign disease so near to our mainland worried him more than any other event of his long career as Secretary of Agriculture.

In 1921, some bulls were shipped from Spain to Mexico, via New York. The ship carrying them was not allowed to dock until after the animals had been transferred to a barge which was anchored in midstream and the vessel had been thoroughly disinfected. These cattle were removed from the barge to a vessel bound for a Mexican port.

Early in 1923, a request was received to import some Brahman cattle from Brazil. The request was refused, as it was

known that foot-and-mouth disease was prevalent in Brazil at that time and rinderpest had been introduced into that country, two years previously, with a consignment of cattle from India. However, on the evening of June 26, 1923, a ship, carrying 128 Brahman cattle from the state of Minos, Brazil, docked at New Orleans. The Bureau inspector at New Orleans immediately took charge of the shipment and refused to permit any of the cattle or attendants, feed, etc., to be landed. Although it was the desire of the shipper to dispose of these animals to purchasers in the United States, he was not permitted to unload any animals, and as soon as the cargo of coffee had been discharged, the ship proceeded to Vera Cruz and the cattle were disposed of in Mexico. This procedure suggests the potential danger to our states along the Mexican border, if the sanitary regulations of the two countries are not equally stringent.

How Fowl Pest was Introduced

The last visitation of a foreign pest which this country has experienced was brought to light in December, 1924. This was the outbreak of fowl pest among the poultry of several Eastern states, which resulted in state embargoes against Western states 1500 miles from the infection. There may have been some other source of origin of this outbreak, but it has been admitted by a professor of a prominent eastern university that he brought some of the filtrable virus of European fowl pest from the Pasteur Institute, France, to his institution, in the summer of 1923. About a year ago, he gave some of this imported virus to a scientific worker in a New England college. Later, he gave virus to a professor in a New York university. A co-worker of the New England scientist, in turn, gave some of the virus to a professor in New Jersey. It may be said to the credit of one scientist in New Jersey that he refused the proffer of some samples of this virus, for obvious reasons. We have further learned that when the assistant to the professor, who brought the virus to this country in 1923, went on his vacation last summer to Ohio, he took some of this virus with him and, in order to keep it alive, so that he might continue his work in the fall, he inoculated chickens at his father's home on June 1, July 1, August 1, and September 1. We have also learned, with considerable interest, that a firm of poultry dealers in New York City has been in the habit of purchasing poultry from at least one of the above institutions.

In conclusion, it must be evident that the Department of Agriculture cannot afford to take any chances in allowing the importation of animals from countries where destructive foreign diseases are known to exist, and we can only surmise what losses we have escaped through the consistent enforcement of our rigid quarantine regulations.

Furthermore, it seems from past experience in this and other countries that the place to study foreign pests and diseases is in the countries where they exist and not in laboratories here, where there is always a potential danger that they may escape to do great damage to our animal industry.

CONVENTION NOTES

Utah was represented by Dr. H. J. Frederick, of Logan, and Dr. N. C. Spalding, of Provo.

Six veterinary deans answered the roll-call of the colleges: McGilvray, of Ontario; Wegner, of Washington; Stange, of Iowa; Glover, of Colorado; Dykstra, of Kansas; and Giltner, of Michigan.

Three other veterinary colleges were represented: Dr. J. D. Grossman, of Ohio State University; Dr. J. N. Frost, of Cornell University; and Dr. F. D. Patterson, of Alabama Polytechnic Institute.

Many favorable comments were heard on the report of Dr. T. A. Sigler as A. V. M. A. representative to the Horse Association of America. Dr. Sigler and Dr. F. J. Muecke, of Indianapolis, were the Hoosier members of the A. V. M. A. party on the Oriental Limited.

Dr. J. F. Hemphill, of Clay Center, Kansas, shook hands with many old acquaintances he met at the meeting. Dr. Hemphill paid quite an extended visit to his old stamping grounds in Oregon, prior to the meeting.

Dr. W. J. Embree, chief veterinarian of the Western Weighing and Inspection Bureau, was in attendance with a number of members of his staff: Dr. B. R. Rogers, of Chicago; Dr. V. W. Myers, of National Stock Yards, Ill.; Dr. Wm. G. Melchiorsen, of Omaha; and Dr. I. O. Burington, of South St. Paul.

EDUCATION AND RESEARCH IN VETERINARY MEDICINE*

By F. M. HAYES

University Farm, Davis, California

Education and research embrace a broad field of subject matter, from which I might choose material for an address on this occasion. Yet such an abundance of important topics is as much a handicap in selecting one or two as is the expansive restaurant menu when we are capable of eating only a simple meal. The few remarks I am privileged to make to this section, by virtue of my office, will consist of a few miscellaneous thoughts upon education and research as applied to veterinary medicine.

Education in veterinary medicine has, and of necessity must continue, to undergo evolution—if we mean by this term growth and development. (I define and restrict the meaning of the word in order to avoid any conflict with the state of Tennessee.) Knowledge in the field of veterinary medicine has increased faster than it has been possible to change curricula to meet the newer needs of the graduate. It has been necessary to add new subjects, and to lay less or greater emphasis upon some that have long been in the curriculum. Our institutions have done well to keep pace, and no censure of inefficiency is here implied. The need for revision of the curriculum is a constant problem. Dean V. A. Moore was among the last to call attention to this problem before this section, which he did in a paper at the St. Louis meeting, in 1922. But so far as I know, his implied request for advice and assistance from the Association has remained unfulfilled.

One thing is certain, in my mind, and that is that the graduates of veterinary colleges of today are unprepared to enter all of the varied fields for which a veterinary education should qualify them. Neither are the graduates in human medicine, nor those in engineering, for instance, prepared at graduation to enter their varied specialties. I do not think that it is possible for any veterinary institution, in the allotted time of four years, with a high-school diploma as a prerequisite to college entrance, to qualify its graduates to this extent. In a few in-

* Address of the chairman of the Section on Education and Research, sixty-second annual meeting of the American Veterinary Medical Association, Portland, Oregon, July 21-24, 1925.

stances, when a student knows by his junior or senior year just what branch he intends to pursue, it might be possible to direct his efforts so that by graduation he would be better prepared to attack a special field in which he is interested. But this does not often happen, and the best that an institution can do is to offer a student as well-rounded a course as is possible in the four years, with emphasis on the side of general practice.

The duty of the college, however, is not over when the student finishes his undergraduate work. More should be offered for those who have the ability, resources, and inclination to go on. By the time of graduation, or a few years afterward, the graduate may have a broader viewpoint of the profession he has chosen. As he matures, he certainly sees a greater horizon, and larger opportunities to aid in promoting a healthy live stock industry, and to advance and improve himself in the knowledge and activities which make life and citizenship useful.

Need for Graduate Work

This brings me to one of the thoughts I desire to present—that of the need for further development of our veterinary schools so as to provide for special or graduate work. This idea may seem premature at a time when the ranks of undergraduates are thinning and the expenses of maintaining equipment in buildings, apparati, and instructors makes the cost of a veterinary education seem excessive in the minds of the taxpayers who furnish the money. If veterinary training is worth what it costs to any state—and of this there can be no doubt—additional training should certainly bring greater returns if we view the matter only from such a narrow and mercenary standpoint, without considering that greater knowledge makes any man better appreciate the fullness of life and reflects credit upon his profession. There is much yet to be uncovered. What we believe today may be discarded tomorrow, and training to pursue the truth intelligently cannot be too great. Evolution is not confined to form alone, but affects the capacity of the mind to reason as well.

What veterinary school graduates men qualified to do research in anatomy, physiology, pharmacology and drug action, biochemistry in relation to animals, therapeutics and surgery, clinical diagnosis, bacteriology, immunology and parasitology; or to practice the healing art upon the feathered kind, small animals, sheep, cattle, swine, horses, fur-bearing animals, and wild ani-

mals in captivity; or qualified by their knowledge to protect human health through food inspection and control infectious diseases so that the live stock industry may prosper and communicable diseases to man be prevented? The answer is none. It is too much to expect of any course of four years upon only a high-school foundation or of any one human being, yet these are activities which justly fall in the realm of veterinary education.

If one is looking for a field of endeavor to which to devote his life, with a minimum of cash recompense but with a maximum satisfaction of work worth while, let him choose veterinary medicine. It is true that this profession does not hold out at present great monetary allurement, but it is proving its value, and time will adjust this deficiency. The average income of the graduate in human medicine is said to be only about $1000 per year. We can not all be plumbers, janitors, or brick-masons which reminds me of a recent Shriners' parade. The Shriners were marching down the street when a man, ignorant of what was going on, stepped up to one who was watching the parade from the curb, and asked what was happening. To which the man replied that the Shriners were having a parade. The questioner looked blank, whereupon the man offered additional information that they were *Masons* parading. An intelligent gleam showed in his face, and he replied, "What the H—— do they want? They get $10.00 a day *now*."

Medical Schools Can Assist

Having emphasized the wide field of veterinary medicine and the need for graduate work, how is the latter to be provided, and will there be any graduate students? It is my opinion that certain of our veterinary schools connected with large universities, especially those universities having human medical schools, can, without very great additional expense, arrange courses in cooperation with the medical or biological departments that will materially benefit the graduate student and lessen the burden of cost of equipment and teachers in the veterinary department. For graduate students who want to prepare themselves for research work in biochemistry, physiology, bacteriology, pathology, immunology, and similar subjects, the cooperation of the veterinary college with the medical school offers an admirable arrangement. In at least one institution with which I am familiar, the professors in the medical

school would be glad to cooperate and have done so, even to the extent of giving special courses. But special courses need not be necessary in all the subjects, because some can be taken with the regular students of medicine, or a student may work on a problem in the medical laboratories that would be useful in veterinary research and practice. Such an arrangement, if consummated, would bring closer relationship between human and veterinary medicine to the mutual advantage of both, and incidentally give a little wider vision of the medical field to the veterinary student.

Furthermore, there is no real good reason why certain selected graduates in veterinary medicine should not be permitted to take courses in schools of public health, and register for a degree if they desire to enter public health departments of the cities. If the degree of Doctor of Public Health is not available to veterinary graduates, then some degree or certificate that would be an evidence to health departments that the student had taken special work should be provided. Certainly a veterinarian with public health training, additional to what he gets in his veterinary school, is splendidly equipped for public health service, and every health department should use some veterinarians in field and laboratory work. Should not this Association, through some committee, such as that on Intelligence and Education, inquire of the schools of public health in our medical institutions concerning the conditions under which graduates of veterinary medicine may enter these schools?

Advanced Degree Desirable

While some veterinary colleges are better prepared to offer courses of the types I have been discussing, others, through environment, equipment, or outstanding teachers, are better equipped to give additional training in the *practice* of veterinary medicine. One school might better develop research in physiology, another in pathology, another in bacteriology and immunology, while others might have all that is necessary for specialization in small animal, cattle, sheep, swine or poultry practice. In all cases, it would be an advantage to the profession if these courses were upon a graduate basis, leading to some kind of a degree, or at least listed as graduate courses in the catalogs. There is a strong tendency in educational institutions at present to require advanced degrees of the younger men before entering institutional work to teach or do research. Our

future graduates must be apprised of this, if they plan to enter university work.

A certain amount of graduate work is already given by some veterinary colleges, and my only criticisms of it are that there is not enough, that the information is not widely enough disseminated, and sufficient effort is not made to attract graduates to take additional work.

At this point, I want to register disapproval of the use of the terms "post-graduate course" and "short course" as applied to some of the special courses of short duration given by some of our state institutions and associations. These are in no sense graduate courses, as the term is understood by the graduate departments of educational institutions, even if the courses are limited to graduates only, and such terms reflect discredit upon these worthy efforts. The term "short course" is much worse, and savors too much of the relationship and qualities of the farmers' short courses, so common in agricultural colleges. The term "conference," "special courses," or any name other than "post-graduate course" and "short course," is suggested.

The matter of whether there will be sufficient graduate students to justify more graduate courses largely depends upon whether there are satisfactory courses offered and well advertised, and whether there are scholarships or fellowships available. Efforts have been made, and should be continued, by deans of veterinary schools and all veterinarians, to interest organizations in the great need and importance of founding scholarships and fellowships, and in contributing to veterinary education and research.

Research the Foundation of Science

Research in medicine is the fountain from which the knowledge of the etiology, pathology, prevention, and treatment of diseases must flow. It is the very foundation of the science. No matter what field the veterinary graduate may follow, he must depend upon the results of research. Progress in every branch of veterinary medicine is dependent upon it, and by it the profession will reach its height of practical usefulness and its highest recognition as a learned profession. If these statements are not to be denied, it follows that the quantity of research and, above all, the quality, should be increased. This does not mean that we have any greater reason to apologize to the scientific world for the type of work done, than have other professions. Perhaps

we are justified in stating that in consideration of the small number of men engaged in research, the veterinary profession ranks high with other professions in the amount and quality of work done. Still we need more and better work conducted.

By a greater quantity of research I mean also a greater variety. Most of the published research reports appearing in the last few years have been upon some of the characters of infectious diseases. Admittedly, these are the most destructive and at the same time the most spectacular—two qualities which offer a great incentive for the research worker to be in the limelight and to the administrator to justify some expenditure for research. The only faults to find with such a policy governing research problems are: first, it tends to result in superficial work; second, in premature publication; and third, the more fundamental subjects needing investigation are neglected. The first two faults at least are not confined to veterinary science. The scientific articles and publications devoted to subjects in which we all are particularly interested are now so voluminous that every investigator should have at least one abstractor with him all the time. If there was some way to separate the chaff from the grain, the abstractor would not need to be employed. But I am neglecting what to my mind is another serious fault in research, and that is the lack of work upon the more fundamental subjects, such as physiology, biochemistry, pathology, pharmacodynamics, and even anatomy. In human medicine, numerous studies are being made on the relation of human constitution and form to disease. Research in these fundamental subjects is necessary to a full understanding and interpretation of disease processes.

Hopeful Signs

The signs are hopeful in this respect, as might be seen in such a subject as appears on our program for this meeting, that of "The Relation of the Thoracic Limb to the Thorax in the Case of the Horse and Ox," and of such articles, to mention only a few, as the following, that have appeared in the official Journal during the year: "Studies of Estrous or Genital Cycle of the Ox," "The Corpus Luteum of the Ox Ovary in Relation to the Oestrous Cycle," "Blood Chemistry of the Horse," "A Study of the Enzymic Action of Extracts of the Duodenal Gland Regions of Domestic Animals," and "Patho-

logical Changes in the Central Nervous System in Canine Distemper."

Let us not neglect study upon the more basic subjects of the science, and let us strive for a better quality of work, and an improvement in the facilities for thorough training for the graduate who is interested in research.

CONVENTION NOTES

Dr. R. G. Bose, of Troy, N. Y., was among the Empire State veterinarians at Portland.

Dr. E. R. Steel attended the meeting as the official delegate of the Iowa Veterinary Association.

Dr. A. S. Schlingman, of Parke, Davis & Company, Detroit, was one of the ten representatives from Michigan at the convention.

Drs. James Robertson, Robert Gysel, and Wm. C. Holtz were the Chicago members of the official A. V. M. A. party.

Dr. J. G. Hardenbergh, of the Mayo Clinic, Rochester, Minn., joined the Oriental Limited at Minneapolis.

Dr. and Mrs. W. A. Haynes, of Jackson, Mich., enjoyed the trip to Portland as members of the party on the Oriental Limited.

President Merillat and Dean Dykstra boarded the Oriental Limited at Fargo, N. D.

Dr. Bruce D. Kennedy, of Ottawa, was the only Canadian member of the official A. V. M. A. party.

Dr. Geo. M. Williams, one of the trio of Iowans on the Oriental Limited, expected to visit some of his old haunts in the Pacific Northwest, after the meeting.

Dr. F. R. Whipple, of Peoria, Ill., received more publicity than any other member in attendance. His operation to remove the bark from dogs appealed to the newspaper men as having real "news" value.

THE EFFECT ON LIVE STOCK, OF WATER CONTAMINATED WITH FRESH WATER ALGAE*

By W. GRAHAM GILLAM, *Cloverdale, British Columbia.*

An apology is perhaps due from me to this meeting for addressing you on this subject, as it is the one that I presented to the meeting of the Northwestern Veterinary Medical Association, held last year, at Tacoma. The fact of my having been asked to present it to you is, I think, sufficient evidence to warrant my concluding that it was of interest to bring before your notice. Since reading this paper I have learned nothing new on the subject and I would welcome any discussion that would bring to light any fresh information on this question. According to Pammel, to whose book I have had occasion to refer, these algae, which belong to the Schizophyseae, are unicellular organisms, and are common in both fresh and salt water.

To quote from a paper read by Professor N. L. Huff, of the University of Minnesota, at a meeting of the Minnesota Surveyors' and Engineers' Society, "The fresh water algae may be divided into three classes, according to their general habit of growth or their vertical distribution. One of these is attached to the substratum, or, if free, is heavier than water and therefore rests on the bottom. The second class includes free-floating forms with a specific gravity about the same as water and are suspended beneath the surface at a depth of from twenty to twenty-five feet. When abundant they give a greenish or brownish color to the water. The third class is the one to which I particularly wish to draw your attention, the blue-green scum-formers. They contain blue-green, blue or violet or purplish pigments. Swarm spores are absent, are simple in structure, existing as a single cell, or as a chain held together by a gelatinous envelope. Chlorophyl and other pigments are not in definite bodies but distributed throughout the cell-contents or else forming a sheath which lines the cell-wall. Reproduction occurs by simple division; some forms produce spores which are thick-walled, thus enabling the organism to live over unfavorable conditions. After a period of rest these germinate and again reproduce in the vegetative way by fission or division."

*Presented before the Section on General Practice, at the sixty-second annual meeting of the American Veterinary Medical Association, Portland, Oregon, July 21-24, 1925.

The blue-green scum-formers are perhaps the most troublesome of all the algae. The first sign of the appearance of some of these blue-green scums is the appearance, near the surface of the water, of tiny, greenish, flocculent masses, or , if the surface is very smooth, the first evidence may be seen in a very delicate "bloom-like" film on the surface of the water. If the weather is warm and there is an absence of winds this film increases at an incredible rate and it is not unusual for some of these forms to double their number in twenty-four hours or less and in a few days the whole surface of the pool or lake may be covered with what looks like a mixture of Paris green and oil and, to my knowledge, in one instance, was mistaken for that.

When the algae are a short distance below the surface they often impart to the water an opalescent or irridescent appearance. It is by no means easy to collect these particles when they are below the surface of the water as they slip through the fingers like globules of oil. According to Pammel, the alga which is most responsible and is most prevalent in this scum is *Gloetrichus pisum*. He says: "It forms green spherical bodies about 1 mm. in diameter, floating at varying depths in the water. It consists of a mass of tapering threads arranged radially in the matrix. The apices of the threads protrude more or less, giving it a bristly appearance. The base of each filament contains a heterocyst, above it a slender cylindrical spore and beyond it the ordinary vegetative threads of the alga."

Some Case Reports

I am possibly going back into somewhat ancient history in recording my experience with the suspected effects of algae on live stock, as it occurred seven or eight years ago, when I was in the service of the Dominion Government and was confined to Northern Alberta. This scum had for some time past been held responsible for the numerous cases of poisoning amongst animals that drink from the lakes in question, and it is quite possible that this is why the aborigines called these poison lakes. In the course of my duties I investigated several cases of suspected poison from this source, and I propose giving a brief record of three typical instances.

Case 1: This was at Fort Saskatchewan, Alberta, where several hogs died and the owner was most emphatic in his assertion that someone had poisoned his slough with Paris green. In this case no symptoms were noted as the animals appeared

quite alright on the last occasion that the owner saw them prior to finding them dead.

Case 2: This occurred at Lougheed, Alberta. In this instance hog cholera was suspected and reported to me as such. There was no evidence of hog cholera and what scanty history there was, was similar to that in case 1. I thoroughly explored the edges of this slough for poisonous umbelliferous plants but found none to which the hogs would have access. The slough had a large quantity of green scum both on the surface of the water and suspended in it.

Case 3: Lake Saskatoon, in the Grand Prairie district, was the scene of this mortality which was of a very alarming nature, several settlers having lost horses, cattle, hogs, and poultry, and even some of the wild birds were poisoned. Owing to the great distance from my headquarters, and the absence of railway transportation, some considerable time elapsed before I arrived on the scene and I was too late to make any autopsies or to see any cases. The symptoms, as detailed to me by a local medical practitioner, were those of hurried respirations, a staggering gait, and rigors immediately followed by death. These symptoms, you will note, closely resemble those of anthrax and corresponded with the symptoms described to me at Lougheed. I may add that there were no cervical lesions.

Postmortem examinations: I had opportunities of making examinations in cases 1 and 2, where, beyond slight patchy congestion of the lungs, heart containing a small quantity of tarry-looking blood and marked engorgement of the cerebral and spinal blood-vessels, there was an absence of any definite lesions. A microscopic examination of the blood was made for the presence of the *Bacillus anthracis* with negative results. At Lake Saskatoon the medical practitioner made one or two autopsies and said he found an absence of lesions beyond a few petechiae on the intestinal walls and congestion of the cerebral and spinal vessels. In no case could I find any trace of algae in the digestive tract or any green or blue coloration, but it is possible that this rapidly undergoes decomposition in the digestive organs.

Conclusions

I am of opinion that these algae are either directly or indirectly responsible for the mortality. Dr. Arthur states that "at the time of the decomposition of these algae the cells are seen to be swarming with bacteria." Whether they were common and

harmless bacteria or pathogenic ones he could not say. He further says that "the accompanying bacteria probably have nothing to do with the mortality and that the death of the animals (in the cases he is referring to) is not probably due to the suspected algae, and that the clue to the real cause has yet to be determined.

The writer is inclined to believe that whilst the ingestion of the algae may not in itself be responsible for death, their presence may be indicative of the deleterious character of the water. Whilst the bacteria themselves may not be pathogenic, and one would judge so from the brief period which elapses between their ingestion and death, yet one is inclined to conclude that the bacteria present in the breaking down cells either eliminate a toxin in the water or within the animal body and that it is this toxin which is immediately responsible for death.

The writer is inclined to the theory that this toxin is eliminated in the water rather than in the body, and in support of this theory it is worth noting that in connection with the Lake Saskatoon outbreak he was informed that this condition arose only when the water of the lake, having been exceptionally low, rose again rapidly as the result of a heavy rain storm; which looks as if the scum, left dry on the lake shore and rocks, immediately began to decompose, when again covered with water, and formed the toxin.

Treatment: Owing to the rapidity of the action of the poison (whatever it may be) treatment is out of the question.

Prevention: If the scum is the cause of the deaths the only preventive measures are those of either keeping the animals away from the affected water or by treating the water with a view to either destroying the algae or preventing their growth. This can be done by the use of copper sulphate which is a well-known algicide. The method of applying copper sulphate is extremely simple. To quote Prof. Huff: "Crystals of the commercial copper sulphate are placed in a coarse sack and this is towed behind a boat until the crystals are dissolved. Care must be taken that boats go in definite courses to insure even distribution of the chemical. By rowing slowly, 100 lbs. will be dissolved in an hour, but with a motor-boat from 250 to 300 lbs. can be distributed in the same period. Where lakes are too shallow or weedy to admit using a boat the solution may be distributed over the surface by a high-powered sprayer."

Amount of chemical required: The majority of the troublesome forms of algae may be destroyed by a solution of one part copper

sulphate to 100,000,000 parts of water. The effect of this solution on either human beings or cattle is negligible and it would be necessary for one to drink more than fifty quarts of water before there would be any danger of producing either an unpleasant or undesirable effect. Once the body of water is free from organisms a very much weaker dilution would be needed to prevent further growth.

Gentlemen, I do not think I have brought anything new before you, but if any of you can throw any more light on the subject I shall feel amply repaid for any little trouble I may have been put to in preparing this paper. In its preparation I wish to acknowledge information gained from Pammel's book, Poisonous Plants; from Professor Huff's paper, and I am also indebted to Dr. E. A. Bruce, of the Research Laboratory, Agassiz, B. C., for information regarding some of the algae.

NEWS ITEMS

A disease which has been causing heavy losses among poultry flocks in Edgar County, Illinois, has been diagnosed tuberculosis, of a particularly virulent type.

A weed exterminator sprayed along the right-of-way of the Chicago and Northwestern Railway, near Crystal Lake, Ill., poisoned fourteen cattle which got out of the pasture and grazed along the tracks recently. The spray contained arsenic, and all the cattle became sick. Little hopes were entertained for saving any of them.

In a herd of 85 sheep infected with anthrax in Prairie County, Arkansas, it is reported that 73 died.

The city of Lexington, Kentucky, made a net profit of $4,197.75, for the first six months of 1925, from the municipal piggery, according to a report recently made by the manager of the city farm.

The number of dairy cows in the United States is on the increase, but not at the same rate as the population. Latest figures of the Department of Agriculture show 26,252,000 cows in the country, producing, on an average, 4368 pounds of milk per year.

THE PRACTICE OF CROPPING DOGS' EARS SHOULD BE DISCONTINUED*

By SYDNEY H. COLEMAN, *Albany, N. Y.*

General Manager, American Humane Association

When the American Humane Association formulated a resolution for the consideration of the American Kennel Club, that "no dog whelped after January 1, 1928, shall be eligible for a prize if shown with cropped ears," it was influenced by appeals of prominent veterinarians and leading dog men, backed by the written opinion of eminent veterinarians for more than half a century. In fact, the resolution was introduced in the national convention of the American Humane Association by a veteran practitioner of your profession. Before any action was taken whatever, letters were written to many of the foremost veterinarians. The replies came back promptly and it was found, as was to be expected, that a very few defended the practice. The outstanding figures not only urged that the Association take up this campaign but also agreed to give it their unqualified backing.

Some stated that their attitude would cost them some present business but in the long run they appreciated that this stand—on the broad grounds of humanity—would gain friends and clients.

Needless to say, such veterinarians are dignifying the profession in the eyes of the public. Formerly pets which were treated at home or by quacks are being taken to the small animal hospitals with such satisfactory results that we prophesy the time is not far distant when small animals will be treated by veterinarians to a far greater extent than horses were twenty-five years ago.

The Veterinary Medical Association of New York City, and the state associations of Wisconsin, Missouri, and of Kansas have already recorded their official opposition to dog-cropping.

Several prominent kennel clubs have joined in the fight, not hesitating to style dog-cropping as a survival of barbarism and stating in no uncertain terms that they regarded it as a cruel and unnecessary operation. They have been joined by great numbers of individual breeders and many specialty writers on

*Presented at the sixty-second annual meeting of the American Veterinary Medical Association, Portland, Oregon, July 21-24, 1925.

dogs. Frank F. Dole, widely known as the Kennel Editor of the *New York Tribune*, has dealt it some smashing blows. He recently wrote: "I am death on the subject, for no one knows better than I do the cruelty of this most unnecessary practice."

Many leading newspapers throughout the United States, including as already mentioned, the *New York Tribune*, the *New York Times*, the *Indianapolis News*, the *Louisville Courier-Journal*, *Atlanta Journal* and others, have commented favorably upon the matter in their news columns or on their editorial pages during the past six months. We have not seen a single comment, either in the daily press or in editorials of dog journals, that favored a continuance of cropping.

There are dog breeders who would prefer to breed dogs commonly cropped but refuse to consider kennels of such varieties because they will not subject their dogs to the cruelty or the possibility of loss, resulting from cropping. As long as the cropped dog remains the criterion, every breeder must crop or he cannot market his dogs.

The English Kennel Club did away with cropping many years ago and, in spite of statements to the contrary, breeds of dogs that were formerly cropped have maintained their popularity and in many cases are far more generally raised than they were before the rule was changed.

It is interesting to note that even some of the specialty clubs that are seeking to perpetuate the present practice of cropping have unwittingly declared the operation painful, comparing it with tonsillotomy in humans, or citing the cases of women who have submitted to facial remodeling in order to beautify their personal appearance.

Apparently, such advocates are totally unaware that they are arguing beside the point. The action of human beings is based upon surgical necessity or is prompted by personal vanity, while with the dog there is no choice, once the owner determines upon the mutilation.

The following is quoted from a letter written by a veterinarian of so high an authority that all of you would know him if his name were mentioned. "The truth is trimming ears is a brutal practice. Except under a general anesthetic (which is seldom used) there is no more painful operation performed on animals, and even when performed under profound anesthesia there is brutal after-care that makes the hardest hearted veterinarian hesitate."

The advocates of cropping attempt to point out how much more cruelty is inflicted upon the dog by leaving the natural ear than to crop it. Strange though it may seem, several varieties of dogs much more commonly used for training and hunting than some of the cropped breeds, have become universally popular for their work notwithstanding a very heavy ear in addition to short legs.

A dog man recently stated that aside from the cruelty of cropping, he was opposed to the practice because of the loss that followed the operation. Bungled jobs, he declared, spoiled many likely dogs and a lowered vitality, as a result of the cropping, left the animal less able to ward off distemper and other diseases and thus robbed the breeder of many prospective show animals.

It would have been easy for the American Humane Association and its advisors to have presented a program that would have been ultraradical and called for the immediate discontinuance of the practice of cropping. Many would have been pleased with such a course and much harsh criticism would have been avoided.

It might have enlisted the cooperation of a larger number if it had attempted to place under the ban every practice followed by the breeders of pure-bred dogs against which some object.

It might have sought to secure specific legislation against cropping in every one of the forty-eight states and could have unquestionably obtained laws on the subject in many instances. Yet, it would be no better off than at present, when those guilty of dog-cropping may be punished under existing anticruelty acts if proof is obtainable. There are many convictions on record.

After most careful thought it did none of these things. Instead, it formulated a resolution which, if passed by the American Kennel Club, must be regarded as fair and reasonable by even the most virulent opponents to any change in present practices. In the long run, this policy will be of the utmost benefit to the breeder and the dog, and the motive—the prevention of cruelty—that prompted the Association to act, will be realized.

Dog fanciers were astonished when the American Kennel Club was requested to pass a rule that "No dog whelped after January 1, 1928, would be eligible for a prize if shown with cropped ears." Immediately they recognized several clearly defined facts:

First: The resolution would not become effective for nearly three years.

Second: That even when it did become effective, cropped dogs might still compete as long as they live, without being penalized.

Third: That sufficient time was allowed the various specialty clubs that crop to agree among themselves upon the type of ear which they will seek to make standard.

Fourth: It would place emphasis upon skill in breeding type rather than making misfits presentable by artificial trimming. Such a step should go a long way toward dignifying the profession of dog breeding and free it from the charge of faking.

Fifth: It would allow enough time to educate the public to a new type of ear without in any way affecting the value of the dog.

Sixth: It would avoid a sudden loss in popularity for the present cropped breeds that might result from a sudden change in style.

Seventh: It would give a chance to breeders to stop a practice that many of them abhor but have no option but to continue under present rules.

Eighth: It displays a commendable desire to cooperate with dog men.

We have made our statement to you professional men as directly as we know how. It is needless for us to point out the cruelty of the operation, even when perfomed under the most perfect conditions, in the face of statement after statement from veterinarians of standing. These things are obvious to you as a result of your personal experience.

We appeal to you individually and to your powerful Association, to stand for the resolution which has been presented to the American Kennel Club. Your influence in this matter will be tremendous; your opportunity to serve the dog is great.

May we, therefore, respectfully place the proposition before you in the form of a concrete resolution, trusting to your good judgment in passing it and placing it before the American Kennel Club, 238 Fourth Avenue, New York City, as your honest opinion for the guidance of its members.

WHEREAS: Dog cropping involves unnecessary cruelty and is a needless practice, contrary to the ethics of the veterinary profession, therefore,

BE IT RESOLVED: That the American Veterinary Medical Association assembled in convention in Portland, Oregon, do hereby appeal to the American Kennel Club to act favorably on the following rule: "No dog whelped after January 1, 1928, shall be eligible for a prize if shown with cropped ears."

To that end, the American Veterinary Medical Association pledges itself and its individual members to help maintain the popularity of those breeds of dogs which heretofore have been commonly cropped.

NEW METHOD OF TREATING ACTINOMYCOSIS*

By W. H. LYTLE, *Salem, Oregon*

State Veterinarian and Secretary, Oregon State Live Stock Sanitary Board

In an effort to develop a more satisfactory treatment for actinomycotic infection in range animals, and also perfect an operative procedure that would be of such technic that laymen could not administer it, we have developed what we believe to be a better, a more scientific and a more intensive and spectacular treatment for actinomycotic tumors.

It is a well-known fact that the daily administration of potassium iodid per os necessitates the handling of the animal to a considerable extent. This also is quite true regarding the application of caustics, escharotics and absorbents applied locally to the offending actinomycotic growth. The oral administration of potassium iodid is very frequently copied by laymen, agricultural agents, and stock owners. This treatment is reasonably effective, but does not exert as intense an action against the actinomycotic process as the treatment we have devised.

The patient should be cast, and the head, or whatever part is involved, immobilized as completely as possible. The cast animal should have the head strapped to a board and held as firmly as one's ingenuity may devise. A nerve-blocking material may be used if the actinomycotic process is near a nerve trunk, otherwise the skin may be desensitized, or if the growth is large and highly inflamed, it will be more or less useless to attempt local anesthesia, as inflammatory processes will not yield to local anesthesia except through nerve-blocking technic.

Our scheme is first to attack the actinomycotic tumor locally, providing the disease has reached such a stage of development where the intravenous administration of sodium iodid will not check the process. In our local treatment, we make use of injections of either Lugol's solution, or plain tincture of iodin. We frequently inject as much as five or six ounces of these materials in an effort to imprison the sterilizing material within the diseased bony process. We make use of an ordinary 15-gauge hypodermic needle and a common 30- to 40-cc serum

*Presented at clinic of sixty-second annual meeting of the American Veterinary Medical Association, Portland, Oregon, July 21-24, 1925.

syringe. It is desirable to pull the skin covering the tumor to one side, as much as possible, before inserting the needle into the diseased bone. This will permit the skin to block the exit of the injected iodin solution after the needle is withdrawn. In case the tumor has ruptured, it will be well to block the opening with pledgets of cotton. It is our plan to imprison as much sterilizing material within the mandible of the jaw, or diseased tissue if other tissues are involved, as is possible. We frequently make use of a 3-inch, 15-gauge needle, similar to that used for intravenous injections, frequently making several punctures in the diseased bone, but trying to make as many skin locks as is possible.

Often, after the injected sterilizing iodin solution has remained within the actinomycotic growth for an hour, a pronounced swelling will take place. Also, occasionally, this treatment is followed by abscess formations and a rupture of the involved actinomycotic growth, or else absorption takes place without abscess formation. Occasionally, several re-injections of the sterilizing solution will be necessary.

The thing we attempt to do is to distribute the iodin solution as thoroughly as possible throughout the whole honeycombed, bony structure.

If it is necessary to open the tumor, it can be curetted out and packed with gauze or cotton, afterwards treating it as an open wound. We supplement this treatment with intravenous injections of sodium iodid, using approximately one-half ounce doses dissolved in 40 to 60 cc of sterile water. The administration of sodium iodid can be given every other day until iodism is produced. Smaller doses may be given if it is convenient to administer the intravenous injection without the necessity of making too many distant calls. Doses as large as one ounce may be given, apparently without harm, to large animals. It is always well to use a 3-inch, 15-gauge intravenous needle.

I find it most convenient, after causing the jugular vein to fill with blood by thumb pressure applied in the jugular groove, first to insert the needle through the skin, then try and get the point of the needle over the vein, and with a quick thrust, force it into the vein. By using a 3-inch needle, the same may be pushed longitudinally into the lumen of the vein, and the same will not be easily dislodged through several separate injections of the intravenous iodin solution.

In case difficulty is experienced in getting the needle into the vein, it is well to have an assistant block the upper part of the vein after it is full through pressure upon it and, because of the vein being full of blood and tense, the wall may be punctured more easily. I might add that a very sharp needle is absolutely necessary to the most successful operative technic. It is always well to use a sharp, fine whetstone in order to give the needle a sharp cutting edge, after which, of course, the needle should be sterilized before being used.

This treatment is probably not the acme of perfection, but in our opinion, it is a better treatment than the old one. Unquestionably, it is more scientific, and is of such technic that it will not be easily copied by those outside of the profession. In all probability, if the treatment is deserving of use, sodium iodid will be put up in ampule form and sold at a reasonable price. Sodium iodid is used instead of potassium iodid, for the reason that it is less irritating and more productive of the results desired.

GLORY BE!

The following Associated Press dispatch from Portland was sent broadcast over the entire country, under date of July 25.

> "Two goats lost their 'bleats' and a dog his 'bark' at the clinical demonstrations conducted by the American Veterinary Medical Association here yesterday. The demonstrations were one of a series of operations performed on animals afflicted in various ways for the instruction of the visiting veterinary practitioners.
>
> "Dr. F. R. Whipple, of Peoria, Ill., described to the convention a method by which the same operation may be performed on other animals as easily as tonsils are removed at present from a human being. Humane societies are studying the results, he said, with the idea of saving the lives of many dogs that have made nuisances of themselves by innocent barking.
>
> "The convention concluded its four-day program with the clinic and formally adjourned."

Newspapers everywhere, for the next two weeks, commented on "bark-less" dogs and "bleat-less" goats. One article was headed: "Glory Be, Science Shows How to Take Bark Out of Dog!" Who said veterinarians were not getting any publicity?

KING OF EGYPT DECORATES VETERINARIAN

Dr. J. E. Aghion Bey (Ont. '07) had conferred on him, by His Majesty the King of Egypt, on June 8, 1925, the fifth Order of the Nile (Chevalier of the Order of the Nile), in recognition of distinguished services rendered his country in connection with the control of tuberculosis, rinderpest, and rabies.

CLINICAL AND CASE REPORTS

(Practitioners and others are invited to contribute to this department reports of unusual and interesting cases which may be helpful to others in the profession.)

AZOTURIA IN A STALLION

By ERNEST F. JARDINE, *Government Veterinary Surgeon,*

St. Kitts, B. W. I.

This pony stallion, about six years old, had been ridden about three miles in the morning, and was tied out on elephant grass all day. He is ridden back, and appears to be all right, but a bit sluggish. (The rider is not much of a horseman, so it is hard to form an opinion as to whether he noticed any peculiarity in the animal's gait, but he said he noticed none.)

He got home at 6:30 p. m. the same day, and the animal, a hired house, was returned to the owner, who lived a few yards away. The owner noticed that the animal staggered in walking, knuckles over on the hind feltocks, and appears as if he will go down on the hind quarters. If the halter shank is slackened, he goes in a circle, it is reported, and will lurch like a drunken man. The muscles of the elbow, gluteal and crural regions are trembling violently. The case being 14½ miles away, I did not see the animal until 9 p. m.

The symptoms were just as described. The eyes appeared normal, the patient was conscious, and eating when I arrived. The pulse was fuller than usual, but the beats normal. Temperature, elevated two degrees. The animal had urinated just before my arrival.

Diagnosis: Azoturia.

Treatment: Two of Abbott's aloin and strychnin compound tablets were given at 9 p. m. At 10 p. m., one tablespoonful of bicarbonate of soda, and another to be given at midnight. Food withdrawn. Next morning, Feb. 27, 1925, at 8 a. m., animal reported to be much better. One tablespoonful of bicarbonate of soda to be given on the tongue three times a day for two days.

Remarks: We all know, or rather are taught, that azoturia is due to a hypernitrogenous condition of the blood, brought on by high feeding and lack of exercise. I have known this animal since

he was a foal, and he has never seen oats. and if he should get a feed of corn (maize) occasionally, providing he had any reasoning powers, he would get down on his knees to thank God. He gets grass, chaff from cane fodder and oilmeal, a small quantity, in water sweetened with molasses.

It can not be the elephant grass, as I have a half-Thoroughbred foal reared on it at all stages of growth. I also saw another case similar to this one where the owner stated the animal had seen no grass for weeks.

I can come to no other conclusion but that it is azoturia. What do your readers think? There must be some other cause besides the hypernitrogenous theory.

THE TREATMENT OF FOLLICULAR MANGE

By OTTO L. MULOT, M. D., *Brooklyn, N. Y.*

In 1923 my bull terrier pup, of championship stock, began to lose patches of her coat and the skin presented small papules, on the summit of each of which was a small vesicle. I called in my veterinary surgeon and he diagnosed it as follicular mange and then and there demonstrated to me, with my own microscope, the presence of the mite. His prognosis was anything but encouraging. He advised formaldyhyde. That is a treatment that is hard on man and beast. I persisted in it for some six months without making much or any progress. Then I tried a patent medicine which, I found, consisted of crude oil and oil of tar. Both of these methods of treatment kept the disease in check but did not bring us nearer to a cure; if stopped, the case promptly got worse.

My veterinarian spoke of the treatment with acid nitrate of mercury ointment, but some how it did not impress me; I was discouraged. Then I happened to recall what I had done in the case of a Greyhound bitch that I had picked up, some twenty years ago. She had very similar spots along her spine. In my conversations with my veterinary friend, I learned how toxic mercury was to the dog. I now began to study my problem in dead earnest. It was: How can I apply bichlorid without poisoning my dog? To apply it to the spine, where the dog could not lick it, was simple enough, and that was the only reason why I did not kill my Greyhound bitch, but to apply it all over the body and not poison the dog was an entirely different problem.

My problem was solved in the following manner: I made one quart of a 1-in-500 solution of bichlorid of mercury. With this I sponged my dog, taking care that she did not lick any wet spots. This can be prevented by using a cup-shaped muzzle. Then I applied common, kitchen soap; and after that I dipped a vegetable brush in the bichlorid solution and worked up a lather. I then placed the dog in the kitchen sink and poured over her what was still left of my bichlorid. Then I rinsed all of the bichlorid off with a copious douche of plain luke-warm water. Up to the time of the rinsing-off, the operation should consume about fifteen minutes. Then the dog is dried and covered up or left in a warm room.

The very first treatment produced a marked improvement. At first I gave two such baths a week. At the end of a month, one such medicated bath. How long should the treatment last? I do not know but should hazard the guess of at least three months. My veterinary surgeon says that he can discover no evidence of mange on her and, furthermore, he says that this was the worst case of mange that he ever saw get well.

NEWS ITEMS

Anthrax made its appearance on about thirty farms, in the eastern part of Arkansas, during the latter part of July. Three townships in Arkansas County, one in Monroe, and a large part of Prairie County were quarantined by Dr. J. H. Bux, state veterinarian.

Dr. C. C. Lipp, of South Dakota State College, issued a warning against the dangers of an outbreak of anthrax, under date of July 19. The disease made its appearance in parts of South Dakota in 1923.

A new case of anthrax developed on a farm near Longtown, Ill., July 20, the first to appear in Perry County for over two weeks.

A report from Minnesota indicates that anthrax recently made its appearance on a farm near Green Valley, followed by the loss of several head of cattle. The owner of the cattle and his son contracted the disease and were taken to the Mayo Clinic, at Rochester, for treatment, according to the report.

ABSTRACTS

GJEDDEPESTEN I 1923 (The Pike Plague in 1923). C. S. Aaser. Norsk Veterinaer-Tidsskrift, Oslo, ii (1925), pp. 33-42; iii (1925), pp. 74-86; iv (1925), pp. 99-121. (To be continued.)

In the February, March, and April, 1925, numbers of Norsk Veterinaer-Tidsskrift the author continues his report on the study of pike plague. The historical part with review of literature was abstracted in the June number of this JOURNAL.

Symptoms and anatomical changes: Edematous swellings and ulcers on the head and body. These lesions vary in size and shape and are grayish, grayish-red or whitish-red in color. In places where there is little subcutaneous tissue, necrosis is commonly observed. The most commonly attacked portions are: upper and lower jaws, especially the latter where the gums are also attacked (this may lead to loss of teeth); the skin over the intermandibular space; face; skin around fins; etc.

In the viscera the following changes were noted: Epi- and pericarditis with serohemorrhagic exudate in pericardium; grayish degeneration of myocardium; peritonitis in a few cases and in one case inflammation in the rectum. (Four illustrations.)

Histopathology: Extensive edema in the intermuscular connective tissue and marked changes in the muscle fibres. These swell up especially at the intersegmentary connective tissue. The striations disappear. The muscle fibres are finally broken down through a necrotic process. In the intermuscular connective tissue are found hemorrhages and round-cell infiltration. The bones may also show lesions. The inflammatory changes are accompanied by coagulation necrosis. (Four illustrations.)

Cause: A vibrio, thought to be the cause of this disease, was isolated. This organism was found in smears in large numbers, often in leukocytes. Pike infusion was used in place of meat infusion for making the agar on which this organism was isolated. This agar had a pH of 6.2. The organism grew best at room temperature and seemed to be an obligate aerobe. Its morphology is variable. Sometimes it is a slender, straight rod, with rounded ends, and again it may look like an S. It has one polar flagellum. It is from 2 to 7 microns long and from 0.4 to 0.5 microns wide. Gelatin and coagulated serum is liquefied; nitrates reduced to nitrites; horse, cow, goat, and human

blood hemolyzed; milk coagulated; dextrose, maltose, lactose, sucrose not fermented and no indol is produced. A pigment of fluorescent character is produced. (Two illustrations.)

The vibrio was agglutinated by sera from naturally and artificially infected pike in at least 1-50 dilutions.

A brief description is given of other organisms encountered in the work with this disease.

H. J. S.

FAEAVLSSPORGSMAAL (Problems in Cattle Breeding). E. Ween. Norsk Veterinaer-Tidsskrift, Oslo, i (1925), pp. 14-25.

Cattle breeding in Norway is difficult, due to the use of range pastures and due to the fact that many different breeds as well as mixed breeds are kept in adjacent areas. District veterinarian E. Ween, on the basis of the history of animal breeding, presents valuable suggestions for a solution to this problem.

H. J. S.

VETERINAERVAESENETS HISTORIE (The History of Veterinary Service). H. Stenersen. Norsk Veterinaer-Tiddsskrift, Oslo, iv (1925), pp. 121-127.

This is a review of the book by the director of the civil veterinary service of Norway, H. Horne, on this subject.

H. J. S.

FLOCCULATION AS A DIAGNOSTIC METHOD FOR RABIES. Juan Ferrer. Revista de Higiene y Sanidad Pecurias, Madrid, xv (1925), 1-2, p. 45.

Wishing to have a rapid and at the same time sure method for the diagnosis of rabies (inasmuch as the biological and histological tests require quite some time) it occurred to the author to use the method of flocculation as employed in other countries for the diagnosis of diphtheria. . . . . On the same day in April, 1924, the following people presented themselves at the laboratory—Ramon Chulvi, Benjamin de la Cruz and Irene Garcia. Each one of these persons had been bitten by a different dog and they brought with them the heads of the respective dogs.

The technic employed was as follows:

With the cerebrum of the dog presented by Ramon Chulvi, a 1-to-200 suspension was made. This was divided among 7 test tubes, plus a control tube. To each of these tubes was added antirabic serum in decreasing quantities, of which 25 drops corresponded to 1 cc, beginning with 25 drops, 12, 6, 4, 3, 2, 1, 0. The tubes were then incubated at 37 degrees and examined at 3, 8 and 24 hours, giving results as indicated in the following table.

Tube	Antirabic serum (drops) in 10 cc Suspension	Readings			Sedi-ment	Result	Diagnosis	
		3 hrs.	8 hrs.	24 hrs.			Biol.	Histol.
1	25	++	++	++	+	+	G.P.	Negri
2	12	++	++	++	+	+		
3	6	±	Tr.	++	+	+	died	bodies
4	4	–	Tr.	+	+	+	on	ob-
5	3	±	+	++	Tr.	–	19th	served
6	2		Tr.	+	Tr.	–	day	
7	1		Tr.	++	Tr.	–		
Control	0		+	+	Tr.	–		

Employing the same technic, the test was made with the dogs which had bitten Benjamin de la Cruz and Irene Garcia, giving the following results:

Benjamin de la Cruz. (*Guinea pig and histological tests on dog brain negative.*)

Tube	Antirabic Serum (drops) in 10 cc Suspension	Readings			Sediment	Result
		3 hrs.	8 hrs.	24 hrs.		
1	25	–	Tr.	+++	+	–
2	12	–	Tr.	++	+	–
3	6	–	Tr.	++	+	–
4	4	–	Tr.	++	Tr.	–
5	3	–	Tr.	+	+	–
6	2	–	Tr.	±	Tr.	–
7	1	–	±	±	Tr.T	–
Control	0	–	–	++	Tr.	–
Irene Garcia. (*Guinea pig and histological tests on dog brain negative.*)						
1	25	–	±	+	+	–
2	12	–	–	±	+	–
3	6	–	–	+	+	–
4	4	–	–	–	Tr.	–
5	3	–	–	–	Tr.	–
6	2	–	–	–	Tr.	–
7	1	–	–	–	Tr.	–
Control	0	–	–	–	Tr.	–

As will be seen from the tables, the results obtained by the flocculation method agreed with the results obtained by the biological and histological methods. We are continuing these tests in this laboratory as often as the opportunity presents, having already observed several cases, and we hope to have a greater number of tests in order to later present a comparative study.

As we believe that this procedure is much more rapid than those formerly employed for the diagnosis of rabies, we recommend it to those who may have occasion to make a diagnosis in suspicious cases of rabies. H. K. W.

FOOT-AND-MOUTH DISEASE IN TEXAS AGAIN

The second outbreak of foot-and-mouth disease in the state of Texas within ten months was confirmed on July 29, 1925, on the same premises, twenty miles southeast of Houston, where the 1924 outbreak began. Immediate steps were taken by the Texas authorities and the Bureau of Animal Industry of the United States Department of Agriculture to eradicate the infection.

Even before a definite diagnosis had been made, the U. S. Bureau of Animal Industry and the Live Stock Sanitary Commission of Texas had a force of experienced men assembled, so that there was no delay in handling the situation. The infected herd, consisting of 96 cattle, many of them Brahmas, was slaughtered and buried on July 31, and on the same date a quarantine order was issued by the Secretary of Agriculture for the protection of live stock and other interests. This order placed under quarantine a large portion of Harris County.

An infected herd was discovered on August 5, within this quarantined area. It consisted of only eighteen head of cattle. This herd was slaughtered and buried the following day. As these animals had been in contact with other animals, prompt action was taken to trace and slaughter all cattle in that locality which had been exposed. Latest reports indicate that the number of possibly exposed cattle is a matter of conjecture.

An investigation is being conducted to ascertain if possible the source of the outbreak. Up to the present time the indications are that the present occurrence of the disease was due to infection harbored in some manner on the premises since the outbreak of last year. Regardless of the source of infection, it seems that the promptness with which the situation was handled prevented the disease from spreading over a large area.

Dr. Marion Imes, representing the Bureau of Animal Industry, and Dr. N. F. Williams, state veterinarian, have been working together to control the disease and the Live Stock Sanitary Commission of Texas has been giving its undivided attention to the problem.

The outbreak of last year occurred during the latter part of September, on a ranch about 20 miles southeast of Houston, and extended to other premises in Harris and Galveston counties, involving 148 diseased and exposed herds. Doctor Imes had charge of the eradication work for the Department of Agriculture in that outbreak, which was suppressed within 30 days.

ARMY VETERINARY SERVICE

CHANGES RELATIVE TO VETERINARY OFFICERS

Regular Army

First Lieutenant Claude F. Cox, Philippine Department, promoted to Captain, with rank from June 28, 1925.

Captain Daniel H. Mallan is relieved from duty at the veterinary station hospital, Ft. Riley, Kansas, and directed to report to the Commandant, The Cavalry School, Ft. Riley, on or about September 10, 1925, as student in the troop officers' course.

Captain Louis L. Shook is relieved from duty at the Army Veterinary School and from further temporary duty with the 6th Field Artillery, Ft. Hoyle, Md., now on summer training at Camp Meade, Md., and directed to report to the Surgeon General for duty as assistant to the Attending Veterinarian, Washington, D. C., on or about July 25, 1925, for duty.

First Lieutenant Harry L. Watson, Fort Oglethorpe, Ga., was promoted to Captain, effective July 18, 1925, and is relieved from duty at Fort Oglethorpe, and directed to sail for the Philippine Islands from New York City, October 28, 1925, and report to the Commanding General, Philippine Department, for duty.

Upon completion of his present tour of foreign service in the Philippine Islands, Captain Clifford E. Pickering is directed to report to the Commanding Officer, Fort Myer, Va., for duty.

First Lieutenant Raymond T. Seymour, Panama Canal Department, promoted to Captain, with rank from June 17, 1925.

First Lieutenant Oscar C. Schwalm, Panama Canal Department, promoted to Captain, with rank from June 18, 1925.

Veterinary Reserve Corps

Additional Reserve Officers

Major:

Youngblood, Frank Jared	14 West 4th St., St. Paul, Minn.

Captain:

Strickland, Robert J.	RFD No. 2, Roebuck Springs, Ala.

First Lieutenants:

Moles, Irving	Central City, Iowa.

Second Lieutenants:

Anderson, David Peters	Klemme, Iowa.
Barrett, Lawrence Dean	Leesburg, Ohio.
Brinkman, Norman Henry	Elma, Wisconsin.
Fisher, Milton Reid	401 Fountain Ave., Paducah, Ky.
Harwood, Nathan Daniel	K. S. A. C., Manhattan, Kan.
Kroger, Herman Joseph	2056 N. Blvd, Baton Rouge, La.
Lames, Harry Stevens	Dysart, Ia.
McCullough, Wilmer Raymond	Bryan, Texas.
Patterson, Roy E.	709 N. 12th St., Beatrice, Neb.
Reid, Ralph Preston	Washington, Ia.
Rife, Charles Cornelius	607 Flower Ave., Takoma Park, Md.
Rogers, Robert Lee, Jr.	Gordon, Texas.
Rosselot, Roy Joseph	2210 Auburn Ave., Cincinnati, O.
Schweizer, Lewis Ellis	Boston, Ohio.
Simonsen, Odell Kenneth	Cherokee, Ia.
Sinnerud, Otto Pedersen	5418 Indiana Ave., Chicago, Ill.
Spearing, Robert Benjamin	Newton, Ia.
Stanton, Louis Eugene	2811 West St., Ames, Ia.
Vail, Francis Lyle	Canton, Minn.
Wesley, Frank Elmo	Vernon, Oklahoma.

ASSOCIATION MEETINGS

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY

The regular monthly meeting of the Veterinary Medical Association of New York City was called to order by the president, Dr. Bruce Blair, in the Academy of Medicine, 17 W. 43rd St., New York City, April 1, 1925, at 8:30 p. m.

The minutes of the March meeting were read and approved.

Dr. J. F. DeVine, of Goshen, N. Y., addressed the meeting on "Breeding Problems." This most interesting subject was thoroughly covered by Dr. DeVine in a most minute and able manner, as only one with years of experience could do. Dr. Otto Faust and others discussed the subject.

Dr. Geo. W. Little reported a number of cases operated on for cecectomy with good results.

Dr. H. K. Miller reported a case of a fistula in the lumbar region of a dog, due to an injury. Dr. J. E. Crawford reported the recovery of a police dog with a double rupture, due to an injury.

Dr. C. G. Rohrer reported the removing of a peach-pit from the intestines of a Pekingese, that had been lodged there for five months. Drs. R. W. Gannett, Bruce Blair, and others reported interesting cases.

Dr. G. G. Kelley, of Freeport, N. Y., and Dr. S. H. Shindell, of New York City, were elected to membership in the Association.

The matter of blanket insurance was held over for the next meeting.

No further business appearing, the meeting adjourned.

May Meeting

The regular monthly meeting of the Veterinary Medical Association of New York City was called to order by the vice-president, Dr. Hermann Kock, in the Academy of Medicine, 17 W. 43rd St., New York City, May 6, 1925, at 8:30 p. m.

The minutes of the April meeting were read and approved.

Dr. Adolph Eichhorn was the first speaker of the evening. He presented a very interesting paper on "Recent Developments on Rejuvenation by Transplantation of Internal Secretory

Sexual Tissues." Dr. Eichhorn cited a great many cases of transplantation of these organs in various animals, with marked results, by a number of investigators. It would seem that a great deal of good can be done by further development of this work. (To be published in the JOURNAL.)

Dr. Louis Griessman read a paper on "Sodium Chlor-Cresylate and Hypochlorite of Soda." This paper brought out some discussion. Aricyl was discussed in several case reports.

Dr. Charles Winslow, of Rockland, Mass., spoke a few words on veterinary practice in general.

Drs. Thomas Dick and James Horden were elected to membership.

A vote of thanks was tendered Drs. Eichhorn and Griessman for their contribution to the program.

No further business appearing, the meeting adjourned.

C. G. ROHRER, *Secretary.*

STATE VETERINARY MEDICAL ASSOCIATION OF TEXAS AND TEXAS A. & M. COLLEGE SHORT COURSE FOR VETERINARIANS

The fifteenth annual meeting of the State Veterinary Medical Association of Texas was held in conjunction with the Texas A. & M. College Short Course for Veterinarians, at College Station, June 15-20, 1925. Never before has there been a greater program planned and carried out in such an instructive, complete and entertaining manner.

The first day of the meeting was given over to the Board of Examiners, for examinations for licenses. The program on the second day, combined with the short course, was opened with an invocation by Rev. W. H. Mathew, followed by an address of welcome by Dr. William Bennett Bizzell, president of the A. & M. College. His address was greatly enjoyed and much applauded. Dr. A. E. Flowers, of Dallas, in his usual happy style of oratory, responded to the address of welcome.

Dr. H. L. Blackburn, president of the State Veterinary Medical Association of Texas, in his annual address, stressed the veterinarian's responsibility to our great institution of learning, matters of state, and to our Association. The Ladies' Auxiliary to the Association was represented in a short talk by Mrs. D. Pearce, of Leonard, and by the presence of the entire body. Dr. Mark Francis, Dean of the Veterinary School, gave one of his usual instructive and humorous orations.

Veterinarians in attendance at the fifteenth annual meeting of the Texas Veterinary Medical Association and Short Course for Graduate Veterinarians, Agricultural and Mechanical College of Texas, College State, Texas, June 15-20, 1925.

On Wednesday evening, a splendid banquet was provided, and Dr. A. E. Flowers, the man who never fails the Association, acted as toastmaster. Speeches of various lengths were heard, in which all lauded the wonderful hospitality and gracious reception tendered by Dr. Marsteller and his staff, and incidentally the latest problems of the world were discussed and settled. The College left nothing undone in the way of entertainment for the veterinarians and their wives, which was thoroughly enjoyed and appreciated. A lawn party, at the home of Dean Francis, furnished the entertainment for Thursday evening and was well attended and enjoyed by everyone. On Friday evening, a watermelon feast was held.

A full program of lectures by prominent Texas and out-of-state veterinarians, including a clinic in charge of Dr. Marsteller, was continued through Wednesday. Dr. J. C. Flynn, of Kansas City, Mo., with his wonderful little wife, the silent big force in his great work, gave a lecture and moving picture of his modernly equipped small animal hospital in Kansas City, which is valued at $40,000.

Dr. J. G. Horning, a small animal specialist of Houston, gave lectures, demonstrations, and operations on bronchoscopy, esophagoscopy and gastroscopy. The profession owes much, and will owe more in the future, to his marked ability. Dr. Horning is very skilled in the removal of foreign bodies from the lungs, by means of the bronchoscope, an apparatus which he is introducing.

One of the best pieces of oratory was delivered by Dr. N. F. Williams, state veterinarian of Texas, who, with his versatile mind and wonderful ability in handling all matters of interest to the State and the profession, clearly demonstrated his thorough knowledge of veterinary practice, from the beginning, up to the present day.

Dr. Maurice C. Hall, of Washington, D. C., conducted a course of lectures and a question box on parasites and parasitic diseases. This proved to be one of the most interesting numbers on the program, Dr. Hall answering questions and discussing them in his delightful, easy manner.

Thursday and Friday, Dr. Marsteller and his wonderful staff contributed to the main body of the program, demonstrating to all present what a great school of veterinary medicine we have in Texas. Dr. R. C. Dunn, poultry specialist, gave several demonstrations on poultry diseases.

Dr. S. N. Blackberg, Associate Professor of Veterinary Physiology and Pharmacology, gave a most interesting address, developing new facts in the line of treatment for deficiency diseases. He also gave a detailed report of experiments on the work which he has done at the College during the past two years. Dr. Blackberg was formerly a student at Columbia University.

Dr. H. Schmidt, of the Experiment Station, gave a most interesting address on anthrax of cattle and horses. He stated that only through preventive vaccination and sanitation could this disease be fully controlled. Dr. D. H. Bennett, of Sonora, spoke on diseases of sheep and goats. "Pure-bred Live Stock" was the subject taken by Professor D. W. Williams, while Professor D. H. Reid spoke on "Poultry Husbandry."

Officers for the coming year were elected as follows: President, Dr. W. R. Sanderson, Brownwood; 1st vice-president, Dr. E. U. Morney, San Antonio; 2nd vice-president, Dr. Raymond R. Childers, Beaumont; secretary-treasurer, Dr. D. Pearce, Leonard.

D. PEARCE, *Secretary.*

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION AND SHORT COURSE

The fourth annual short course for veterinarians and the twenty seventh semi-annual meeting of the Minnesota State Veterinary Medical Association was held at University Farm, St. Paul, July 15-16, 1925. There were 185 veterinarians registered, and 35 wives and daughters of the visiting veterinarians were also entertained. The program opened Wednesday morning, July 15, with an address of welcome by Dean W. C. Coffey, of the Department of Agriculture, University of Minnesota. This was followed by a very instructive talk by Dr. L. A. Merillat, president of the American Veterinary Medical Association. He took for his text, "Ten Consecutive Cases I Have Met in a Country Practice," and pointed out to the practitioners certain differences between a city and a country practice. The cases which he had under consideration were varied and the lessons drawn from them were much appreciated by his audience. At noon all adjourned to the University cafeteria where a luncheon was served.

The first paper after lunch was by Dr. W. J. Embree, of the Western Weighing and Inspection Bureau, Chicago, Illinois, on "Losses of Live Stock in Transit," illustrated by lantern slides.

Dr. H. M. Martin, of the University of Nebraska, gave a very instructive talk on important diseases of poultry. Dr. W. F. Guard followed with a report of his recent studies on the eye of the horse, with particular reference to periodic ophthalmia.

The evening meeting was devoted to a discussion of the future of the veterinarian. Dr. N. S. Mayo, of Chicago, discussed the veterinarian of the past; Dean W. C. Coffey, of the Minnesota Department of Agriculture, spoke on the veterinarian and his relation to animal husbandry; and Dean V. A. Moore, of the New York State Veterinary College at Cornell University, discussed the future of the veterinarian. The papers and the dis-

A View of the Veterinary Buildings at University Farm, St. Paul, Minn.

cussion which followed seemed to indicate that there is no basic reason why the veterinarian should feel discouraged as to the future. It is true, of course, that there are many drawbacks, but this is likewise the case in any other profession. It is absolutely essential that the veterinarian of today fit himself to the changed conditions relative to agriculture. He must have as much knowledge of the hog, cow and poultry as the veterinarian of the past had of the horse.

The second day, July 16, was devoted to a large extent to the discussion of clinical subjects. Dean R. R. Dykstra, of Manhattan, Kansas, discussed surgical diseases of the horse. Dr. J. N. Frost, of the New York State Veterinary College, Cornell

University, gave a very instructive talk on the diagnosis and treatment of diseases of the genital organs of cattle; and Dr. W. F. Guard, of Iowa State College, discussed the treatment of some important surgical diseases of swine. Dr. W. J. Lentz, in charge of the small animal clinic at the University of Pennsylvania, discussed diseases of small animals. Following this a clinic was held for the remainder of the day. Over thirty cases were presented for diagnosis and treatment. These were in charge of men who are specialists in their particular lines.

C. P. FITCH, *Secretary.*

EASTERN IOWA AND MISSISSIPPI VALLEY VETERINARY MEDICAL ASSOCIATIONS

Western Illinois and Eastern Iowa veterinarians and their families gathered for a monster picnic at Iowa's foremost fair grounds, at West Liberty, July 16, 1925. The affair was under the auspices of the Eastern Iowa and Mississippi Valley Veterinary Medical Associations. It is conservatively estimated that over 1000 people were in attendance by noon, cars being seen with the license plates of every county in eastern Iowa, with many Illinois cars among them. In the afternoon, the crowd was swelled by many West Liberty residents, sixty business and professional men of West Liberty mingling with the crowd to extend West Liberty's greetings.

Following the picnic dinner, the meeting was called to order by Dr. John B. Bryant, of Mt. Vernon, Iowa, vice-president of the Eastern Iowa Association. Mayor Kerr addressed the crowd with a speech of welcome. In response, Dr. G. C. Eckley, secretary-treasurer of the Mississippi Valley Association, Monmouth, Ill., gave a short talk. Dr. J. S. Koen, of Bloomington, Ill., spoke entertainingly and well, urging better organization for the good of the veterinarians themselves and those whom they serve so capably—the live stock raisers. Dr. Koen brought out that the live stock industry has no better insurance than efficient veterinary service, and ascribed the fact that the Middle West is the safest place in the world to invest money in live stock to the competent veterinary personnel of this section.

The afternoon program, arranged by the Entertainment Committee, went off without a hitch. Drs. J. C. Carey and J. C. McCabe, of West Liberty, Henry Hell, of Wilton, and Dr. I. W. Moranville, of Durant, served on this committee and deserve much praise for their efforts.

The big crowd in the grandstand appeared like a big day at the great West Liberty Fair and was enthusiastic over each event. The West Liberty Vocal Quartette sang several pleasing numbers to the enjoyment of the crowd. The West Liberty Boys' Brass Band furnished music throughout the afternoon. "Spot Alone," West Liberty's high school equine, owned and trained by Prof. H. G. Clark, gave a high-class performance as did Professor Clark's high-diving and trained dogs.

The champion hundred-pound baseball team of Iowa, the Wilton Juniors, won by a score of 11 to 10 from the West Liberty Juniors. It was a fast game, very creditably played, and went ten innings. The crowd became highly excited at the tie and cheered the boys to the echo.

Running Race at West Liberty, Iowa, Fair Grounds, During Picnic of Eastern Iowa and Western Illinois Veterinarians, July 16, 1925.

In the mile pace, Little June, owned by Patsey Sullivan, of West Liberty, won the first heat in 2:21 and the second in 2:23 over a heavy track. Marie Oakley, also owned by Mr. Sullivan, was a close second; Ben Lightfoot, owned by Leslie Lightfoot, of West Liberty, came in third; and Fireball, owned by Joe Miller, of West Liberty, finished fourth.

Double Worthy, a promising three-year-old, owned by Jim Sloan, of West Liberty, brought the crowd up standing at the finish of the first heat of the trotting race, the mile in 2:30; second heat, 2:28. Ben Silk, owned by Joe Miller, was a close winner of this race. The sons of James Greenway, Edwin and Verne, took first and second in the quarter-mile running races.

Bill Maher was third and George Thompson fourth. The time was thirty seconds flat and in both heats, the horses finished in a bunch going strong.

P. W. Gibson, prominent horseman of West Liberty, ably acted as starter and won the acclaim of the crowd by his able management. Dr. E. G. Templeton, of Anamosa, Dr. Matt Lair, of Alexis, and Dr. J. W. Griffith, of Cedar Rapids, acted as judges and Dr. W. F. Brownlee, of Kirkwood, Ill., acted as timer

A foot race of well-known persons present furnished a great deal of amusement for the large crowd. P. W. Gibson, first; Allie Sissel, also of West Liberty, second; Dr. J. W. Griffith, of Cedar Rapids, third; Dr. Tom Downing, of Washington, Iowa, fourth.

All in attendance seemed so pleased with the picnic that there is a movement on foot to make it an annual affair.

NORTH DAKOTA VETERINARY MEDICAL ASSOCIATION

The veterinarians of North Dakota held their annual gathering July 16-17, 1925, at Fargo, this being the twenty-fourth session of the Association. The meeting was convened at the Veterinary Building of the Agricultural College, as has been customary during the past years. The Association was very fortunate this year in again being honored by the presence of some of the prominent members of America's veterinary profession.

The forenoon of the first day's session was devoted almost wholly to business and the election of officers. President Miles, in his address, called attention to the critical era through which the veterinary profession of this country is passing. The value of the state and national associations was stressed, and an appeal made for a more close allegiance to these organizations. Case reports were presented by various members of the Association and considerable discussion devoted to this phase of the program.

The afternoon session was transferred to the parlors of the Fargo Commercial Club. Dr. V. A. Moore, of Cornell, delivered an excellent address, the subject of which was "The Outlook for Veterinarians." The present situation was viewed from various angles and a wealth of data presented. The phenomenal growth of our profession here in the United States was called to the attention of the audience. Compared to European countries our growth has been exceedingly rapid, and we should view present

conditions with a greater degree of patience in the light of such knowledge. Doctor Moore expressed his concern regarding the matter of suitable text-books for our students and practitioners. The small demand for such publications has resulted in publishers refusing to risk financial loss in printing even the very best and standard texts which are so essential to the student of veterinary medicine. This will undoubtedly be a grave problem in the immediate future and one which but few are aware of at the present time.

Dr. L. A. Merillat was then introduced. He also talked upon the problems confronting the veterinarian of today. The dangers of "short course" education of laymen in the treatment of animal diseases were emphasized. The veterinarian of today is too passive and nonresistant to those conditions which are threatening the life of the profession, and Dr. Merillat recommended a more determined attitude upon the part of the practitioners and other members of the profession, as one of the necessary steps to be taken in correcting the present situation, and firmly establishing veterinary medicine upon the plane it now occupies in European countries.

At the conclusion of Dr. Merillat's address, Dr. W. F. Crewe, state veterinarian of North Dakota, briefly outlined the present system of tuberculosis control work in the state and the reasons for such methods.

An excellent banquet was served at 6:00 p. m., in the Commercial Club rooms, which was enjoyed by some fifty-five members and wives. Musical numbers and readings were presented between courses. Following the banquet, Drs. Moore and Merillat gave brief talks, and the matter of forming a women's auxiliary came up for discussion. All the ladies present were favorably inclined and such a unit will undoubtedly be organized within the near future.

At 9:30 the following morning the meeting continued its program at the Veterinary Building of the College. Dr. R. R. Dykstra, of the Kansas State Agricultural College, delivered his paper entitled, "Some Bovine Surgery." The necessary attributes requisite on the part of the surgeon and the essential fundamentals, such as cleanliness and adequate anesthesia, were discussed. Several surgical procedures were outlined and the technic described and illustrated by charts. The simplified method of amputating the claw is of interest and appears to be

a very practical operation. An interesting discussion was indulged in, following the conclusion of Dr. Dykstra's paper.

Dr. W. F. Guard, of Iowa State College, talked upon the subject of "Local Anesthesia and Its Application in Veterinary Medicine." The local type of anesthesia is without doubt a most excellent aid to the veterinary surgeon who performs his work without any trained assistance, and the practitioner of today should enlarge his store of knowledge concerning the value of the various local anesthestics upon the market, and thoroughly understand the proper methods of administration.

The afternoon session of July 17 was given over entirely to clinical work under the direction of Drs. Dykstra and Guard. Of the various cases presented Dr. Dykstra demonstrated the technic of cryptorchid castration in the horse and the radical poll-evil operation. Dr. Guard operated on a shoulder tumor and a fistula of the left flank region. The various methods of general and local anesthetization were demonstrated in connection with these operations.

The meeting was adjourned at the termination of the surgical demonstrations. This session was one of the most enjoyable of any held within recent years. With fine weather conditions, a good program and everybody in the best of spirits, the results could not be otherwise. The Association extends a hearty vote of thanks to Drs. V. A. Moore, L. A. Merillat, R. R. Dykstra and W. F. Guard for their kind assistance in putting over this meeting.

The personnel of officers for the ensuing years consists of Dr. T. O. Brandenberg, Lakota, president; Dr. G. A. Ottinger, Jamestown, vice-president; Dr. R. S. Amadon, Fargo, secretary-treasurer.

R. S. AMADON, *Secretary.*

MARYLAND STATE VETERINARY MEDICAL ASSOCIATION

The summer meeting of the Maryland State Veterinary Medical Association was held at Frederick, Md., July 9-10, 1925, with about fifty members in attendance.

The meeting was called to order in the assembly room of the Y. M. C. A. Building, by the President, Dr. C. M. Grubb, of Rockville. After a most eloquent address of welcome by the representative of the mayor of Frederick, Mr. Brown, the

President gave a rather short but fitting response. He called attention to certain of the notable achievements of some of the members of our profession, such as the discovery of the cause of Texas fever, the treatment for hookworm, etc.

This address was followed by a paper by Dr. J. A. Kiernan, chief of the Tuberculosis Eradication Division, Bureau of Animal Industry, Washington, D. C. The subject of his address was "Tuberculosis Decreasing." He pointed out that, at the present time, state aid in the eradication of tuberculosis totals about $12,000,000 a year. In addition to this enormous sum, the Federal Government is spending approximately $3,500,000 per year. This makes a grand total of over $15,000,000 per year to be used in the fighting of this dread disease. Dr. Kiernan recommended that calves under six months of age should also be tested, even though their temperatures may be erratic. He also feels that hogs and poultry should be tested, especially in area work.

The second address was given by Dr. Kiefover, a noted sanitarian and health officer of the city of Frederick. He discussed tuberculosis in children. Some time was also devoted to the Frederick milk ordinances. Both this and the preceding paper were fully discussed. The authors were given a rising vote of thanks.

The afternoon was devoted to the clinics, which were held at the Fair Grounds. Good operators and plenty of both large and small animals were available. A banquet was held in the evening at the Francis Scott Key Hotel. Dr. I. K. Atherton, in charge of the hog cholera force in the State, presided. Those in attendance were of the opinion that Dr. Atherton should have been a toastmaster by profession, instead of a "hog cholera specialist."

The morning of July 10 was devoted to papers. The first subject presented was "Johne's Disease." It was handled by Dr. R. C. Reed, of the University of Maryland. A very interesting discussion developed on the differentiation between Johne's disease and tuberculosis, of bovine and avian origin, in tuberculin and johnin testing, and also in the postmortem lesions found.

The second paper was entitled "Botulism," and was presented by Dr. F. W. Cruickshanks, of Hagerstown. The paper, as well as the discussion which followed, brought out some very interesting case reports on the subject. The experience of those who had encountered the most cases seemed to indicate that the

antitoxin worked very nicely as a preventive. As a curative, the opinions were not so definite. The majority, however, seemed to feel that in severe cases the dosage of antitoxin recommended by the producers is often entirely too small.

The third paper was entitled: "Bovine Abortion; Its Prevention and Control," and was presented by Dr. M. F. Barnes, in charge of the Pennsylvania State Live Stock Sanitary Board Laboratory, Philadelphia. This difficult subject was most excellently handled by Dr. Barnes. The paper took up in detail the Pennsylvania Plan for the handling of this disease. The data obtained to date were given. We were also given some interesting data on the production of milk from a clean herd and an abortion-infected herd, kept under similar conditions. The findings showed that the clean herd produced approximately one hundred per cent more milk per year for a period of five years.

The last paper of the morning was the famous "Parasite Question Box." It was conducted by Dr. M. C. Hall, our noted parasitologist of the Bureau of Animal Industry, Washington, D. C. Dr. Hall was more than up to his usual standard in giving definite information on the handling of the different parasitic infestations of our domestic animals. His classification of the contraindications of certain drugs in specific cases was most interesting and instructive.

The afternoon was devoted entirely to the clinics. Again, experienced operators were provided with an abundance of both large and small animal cases. Toward the latter part of the afternoon, several operations were in progress at one time, and the observer found himself more or less in the position of the small boy who was trying to watch a five-ring circus.

E. M. PICKENS, *Secretary.*

NATIONAL ASSOCIATION OF BUREAU OF ANIMAL INDUSTRY VETERINARIANS—MONTANA DIVISION

A meeting of the Montana Division of the National Association of B. A. I. Veterinarians was held in the Live Stock Building, Helena, Montana, July 17, 1925. This division enjoys a membership of 100 per cent, and all members were present.

On July 18, the members were favored with a short talk by Dr. John R. Mohler, Chief of the Bureau of Animal Industry, Washington, D. C., who visited Helena en route to the A. V. M. A.

convention held in Portland. He also addressed the meeting of the Montana State Veterinary Medical Association, which was in session July 17-18.

Great interest in the work of the National Association is being shown by the members of the Montana Division and, while able to meet only once a year, due to the great distances to be traversed in this state, close fellowship is maintained. Interesting discussions relative to the Bureau activities in Montana were held, and it is planned to have several papers dealing with various phases of Bureau work in this state submitted at our next meeting.

The following officers were elected for the ensuing year: Dr. J. W. Murdoch, president; Dr. J. H. Shoemaker, vice-president; Dr. W. L. Carson, secretary-treasurer.

Following the Montana State Veterinary Medical Association meeting, several members left for Portland, to attend the A. V. M. A. convention.

W. L. Carson, *Secretary.*

MAINE VETERINARY MEDICAL ASSOCIATION

On Wednesday, July 22, 1925, the Maine veterinarians, with their wives, motored up through the Kennebec and Penobscot valleys and across the potato kingdom of Aroostook County—where miles of potato blossoms greet one's view—to Caribou, for the summer meeting of the Maine Veterinary Medical Association.

Dr. B. L. Pratt, of Caribou, has provided a clinic in his spacious hospital and operations were commenced at 11 a. m. Dr. E. E. Russell, of Farmington, assisted by Dr. C. B. Dwinal, of Bangor, performed some of the operations, while Dr. Dwinal, assisted by Dr. A. J. Neal, of Bangor, operated on other cases.

After the clinic, dinner was served in the Vaughan House, where the regular meeting was called to order by Dr. E. E. Russell, president, at 1:30. After the minutes of the previous meeting were approved and other regular business attended to, Dr. L. H. Bachelder, of Presque Isle, was elected to membership.

Cases of special interest to practitioners were discussed as follows: Dr. G. J. Burtt, of Fort Fairfield, gave an interesting account of a horse recently presented at his hospital; it was bleeding at the nostrils and doughy swellings were present on belly and hind legs; no history of any accident or other data available. The diagnosis was purpura hemorrhagica.

Dr. H. W. Jakeman, of Boston, Mass., in discussing possible treatments for this case, suggested the use of antihemorrhagic septicemia serum. He stated that many practitioners were using this product in the treatment of purpura hemorrhagica with surprisingly good results. In fact, many veterinarians claim they have had more uniformly good results with this treatment than with any of the others which have been advocated from time to time. Dr. L. E. Maddocks, of Gardiner, stated that such cases were treated in the Army with aloes, and followed by the administration of one half ounce of tincture of iodin in 1½ ounces of water three times daily; Dr. C. L. Ryan, of Dexter, and Dr. A. J. Neal, also suggested lines of treatment.

Dr. C. F. Dwinal described an interesting case of cesarian section, operation being successful and patient recovering; he also mentioned an odd case of tetanus recently observed, in which the patient showed symptoms of colic.

Dr. A. J. Neal mentioned being called to four different equine cases, all showing similar symptoms, within a few days of each other. Small swellings appeared at elbow region, showing slight discharge. All yielded to drainage and antiseptic treatment. At about the time these cases appeared, the hospital at Bangor had some similar human cases, supposed to be caused by poisonous mosquito bites.

Dr. Ryan reported being called to four cases of poisoning, the symptoms resembling forage poisoning. All occurred in cattle in one pasture; no specific poisons were found in the pasture. He had partial success in treating these. Another peculiar case described was where a cow was well in the evening and was seized with a crazy spell during the night, dying before aid arrived; the only evidence found on postmortem, that might have caused the death, was what looked like the remains of an afterbirth in the paunch.

Dr. D. K. Eastman described a case of scrotal hernia in a valuable race horse. The animal was expelling gas and liquid through nostrils and sweating profusely when he arrived. The hernia was reduced; an enema of an ounce of chloral in a quart of water was given to relieve pain, and the following day a pint of mineral oil was administered twice. The patient made a complete recovery.

Several cases of fright disease in dogs were discussed by Dr. Neal, together with another dog case of a square-pointed bone in the intestine; an enema followed by morphin got rid of the

bone and the patient recovered. Dr. W. H. Corey, of Newport, gave an account of several cases of human tuberculosis that were traceable directly to tuberculous cattle as the fountain-head of the infection. Infected cows' milk caused the trouble.

The next meeting will be held at Lewiston, the second Wednesday in October.

J. B. REIDY, *Res. Sec. for Maine.*

EASTERN IOWA VETERINARY MEDICAL ASSOCIATION

President McCabe has appointed committees to arrange for the coming twelfth annual meeting of the Eastern Iowa Veterinary Medical Association, Cedar Rapids, Iowa, October 7-8. The meeting promises to be a success on a par with the veterinarians' big picnic at West Liberty, Iowa, July 16. It is desired to extend a cordial invitation to all veterinarians to attend this meeting.

CONVENTION NOTES

Dr. E. L. Stubbs, of Oxford, Philadelphia, and Harrisburg, Pa., one of our foremost poultry experts, did not have a lonely moment on the trip west or while at Portland. Reports relative to his return trip are lacking.

Dr. T. F. Nugent, of Newcastle, Pa., was the only practitioner from the Keystone State at the meeting.

PERSONALS

Dr. E. Brainerd (McGill '93) has returned to Memphis, Mo., after a sojourn in Colorado.

Dr. R. W. Youngblood (McK. '09), of Henderson, Ky., is a breeder of pointer dogs.

Dr. W. J. Ridgway (Ind. '99) has been re-engaged as Crawford (Ill.) County veterinarian for another year.

Dr. Everett O. Lummis (O. S. U. '25), of Paloma, Ill., has entered into partnership with Dr. H. E. Nelson, of Mt. Sterling, Ill.

Dr. William A. Smith (Ont. '18), of Heron Lake, Minn., has purchased the practice of Dr. W. A. Moeller (St. Jos. '10), of Pocahontas, Iowa.

Dr. L. A. Willson (Ont. '91), of the Health of Animals Branch, has been transferred from Montreal to Toronto. Address: 45 Riverdale Avenue.

Dr. G. G. Miller (Chi. '11), formerly of Council Bluffs, Iowa, is now located in Denver, Colo., engaged in small animal practice. Address: 1919 South York Street.

NECROLOGY

LELAND GRANT DASSANCE

Dr. Leland G. Dassance died at his residence, Saranac Lake, N. Y., July 12, 1925. Death was the result of a prolonged illness contracted during his service in the World War.

Born in Newfield, N. Y., April 5, 1891, Dr. Dassance was a graduate of the New York State Veterinary College, Cornell University, class of 1915. He enjoyed a very large practice in and about Gasport, N. Y., up until the time he entered the Army, July, 1918. He served honorably as second lieutenant in the Veterinary Corps and suffered a physical breakdown while stationed at Camp Upton, N. Y.

Although withdrawn from active practice during latter years, Dr. Dassance maintained a keen interest in the affairs of his profession, and he was esteemed by his associates in veterinary and other circles. He was widely read. His fortitude during the long and losing fight to recover his health won him the high regard of all who knew him. Dr. Dassance was a member of Gasport, N. Y., Lodge 787, F. & A. M. Masonic services were held at his former home in Newfield, N. Y., and his body was taken to its last resting place at the scene of his boyhood. He is survived by his widow, his daughter Frances, his parents, three sisters and three brothers.

GEORGE A. SCOTT

Dr. George A. Scott, of Waterloo, Iowa, died at his home, July 13, 1925, after quite a long illness. Heart trouble was the cause of death.

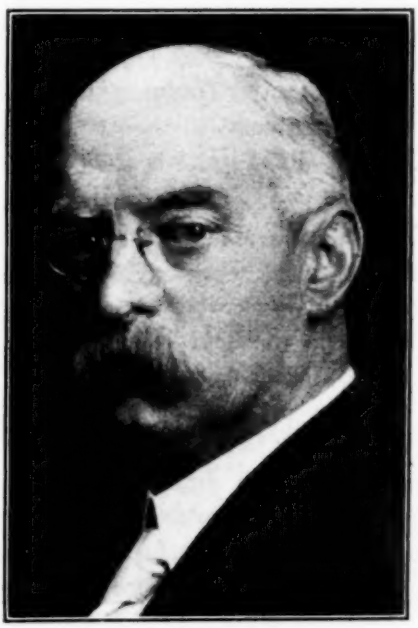
Born June 12, 1864, near London, Ontario, he was graduated from the Ontario Veterinary College in 1886. He practiced at Park Hill, Ont., for about a year. Then he removed to Waterloo, Iowa, and established a practice there with his twin brother Thomas W., who had finished his course at Toronto in 1885. In 1888 Dr. Scott removed to Independence, Iowa, and practiced there for fourteen years. He then went into Government service and was stationed at National Stock Yards, Ill. In 1903 he was transferred to Chicago. While here he joined the faculty of the McKillip Veterinary College. In 1906 Dr. Scott returned

to Waterloo and again entered private practice. Three years ago he built one of the most modern veterinary hospitals in the state. Dr. Laurence P. Scott, his son, became associated with him in 1919.

Dr. Scott joined the A. V. M. A. in 1902. He was chairman of the Audit Committee, 1922-23. He was a charter member of the Iowa Veterinary Association. He is survived by his widow, two sons and two brothers.

WILLIAM HADDOCK DALRYMPLE

Dr. William H. Dalrymple died at Baton Rouge, La., July 17, 1925, after an acute illness dating back about a week. For several years Dr. Dalrymple had not enjoyed good health, but had been able to go about his institutional duties until the morning of



DR. W. H. DALRYMPLE

July 8. He died without knowing the true nature of his condition —an aneurysm at the base of the heart and arteriosclerosis.

Born at Stranraer, Wigtownshire, Scotland, April 24, 1856, Dr. Dalrymple attended Stranraer Academy and then the Royal College of Veterinary Surgeons of Glasgow, from which he was graduated in 1886. In 1888 he was made a member of the veteri-

nary staff of the Irish Privy Council, Dublin. A year later he came to America to accept the positions of Professor of Comparative Medicine in the Louisiana State University, and Veterinarian to the Louisiana Agricultural Experiment Stations, which posts he filled until 1893. In that year Dr. Dalrymple returned to his native land, but the call to return to Louisiana was so strong that he could not resist it, and in 1897 he resumed his former positions in the Louisiana State University and filled them until 1919, when he was appointed dean of the College of Agriculture in the same institution. A year later ill health compelled him to resign.

As a writer Dr. Dalrymple had a world-wide reputation. For many years he was a collaborator on the editorial staff of the American Veterinary Review. He was at one time editor of the live stock department of the *New Olreans Picayune*. He was the author of Veterinary Obstetrics and Livestock Sanitation, as well as numerous articles, bulletins and monographs on veterinary, sanitary and animal husbandry topics. He was the reporter on anthrax for the United States at the Tenth International Veterinary Congress, London, 1914. He was a member of the Authors' Club of London.

In the field of sanitary science, Dr. Dalrymple was an outstanding figure in the South. He early appreciated the value of, and necessity for, control work with such diseases as Texas fever and anthrax. He was a member of the Louisiana State Live Stock Sanitary Board, for the organization of which he was largely responsible. The establishment of a municipal abattoir in Baton Rouge was largely the result of his efforts.

It was Dr. Dalrymple who directed attention to the possibilities of utilizing blackstrap molasses as a feed for live stock. When he went to Louisiana, blackstrap was being thrown away, as a by-product, or, at best, small quantities were being used as a condiment to induce live stock to eat large quantities of otherwise unpalatable food. Today every drop of blackstrap is being fed, and millions of dollars saved to the sugar industry.

Few men had as many honors conferred upon them as did Dr. Dalrymple. Hon. John M. Parker, Governor of Louisiana, named Dr. Dalrymple on his list of the five greatest living Louisianians, a few years ago. He was an honorary member of the Illinois and Kentucky State Veterinary Medical Associations, the Louisiana State Medical Society, and the East Baton Rouge

Parish Medical Society. He was honorary vice-president of the Baton Rouge Chamber of Commerce.

His affiliations with scientific, literary, civic and religious organizations were numerous. Besides his memberships already mentioned he was identified in various ways with the following: Louisiana State Agricultural Society, Louisiana Stockbreeders Association, United States Experiment Station Veterinary Association, National Live Stock Association, Louisiana State Sanitary Association, Glasgow Veterinary Medical Society, American Medical Association, American Association for the Advancement of Science, Royal Institute of Public Health (London), American Genetics Association, Louisiana Society of Naturalists, Louisiana State Veterinary Medical Association, Society for the Promotion of Agricultural Science, etc., etc.

Dr. Dalrymple joined the A. V. M. A. in 1894. Few members have served the Association in as many different capacities. He was resident secretary for Louisiana from 1895 to 1901; member of the Committee on Diseases (1897-98 and 1910-11); member (1896-98 and 1909-10) and chairman (1899-1900) of the Committee on Intelligence and Education; member (1900-01) and chairman (1912-13) of the Committee on Resolutions; member of Publication Committee (1904-05); member of Committee on Revision of Constitution and By-Laws (1909-10); chairman of Committee on Necrology (1911-12); member of Liautard Memorial Committee (1918-20); member of Committee on Cooperation of Veterinary Associations (1919-20); member of Executive Board (1900-09); vice-president, 1900-04 and 1905-06; president, 1907-08. From October 1918, to January 1920 he was Editor of the JOURNAL.

Dr. Dalrymple is survived by his widow, one son and one daughter.

JOHN VAN TASSEL NEWTON

Dr. John V. Newton, of Toledo, Ohio, died suddenly at his home, July 22, 1925. He had been in excellent health lately and his death was unexpected. Heart disease was ascribed as the cause.

Born in Huntingdon, Ontario, October 19, 1850, Dr. Newton attended the Ontario Veterinary College and was graduated in 1878. He immediately located in Toledo and practiced there up

until the first of the present year, when he sold his interest to his partner, Dr. Reuben Hilty.

Dr. Newton was widely known. He early became identified with the Republican party and, in 1894, was elected County Commissioner and served two terms. It was during his incumbency that the present court house was constructed and it is stated that it was one of the few public buildings in the country to be built within the appropriation. In 1899 Dr. Newton was elected Sheriff of Lucas County, a position he held two terms. In 1910 he was elected County Treasurer, but was defeated in 1912 when he ran for re-election on the Progressive ticket.

Dr. Newton joined the A. V. M. A. in 1903. He was resident secretary for Ohio, 1907-08. He was a member of the Committee on Resolutions, 1908-10 and of the Special Committee appointed in 1908 to revise Article VI of the By-laws. He was one of the two surviving charter members of the Ohio State Veterinary Medical Association, of which he was president, 1885-86. He was an honorary member of the Michigan State Veterinary Medical Association. He was a charter member and past president of the Northwestern Ohio Veterinary Medical Association.

As one of the two living directors of the Toledo Humane Society, who had served since its formation in 1884, Dr. Newton served as first vice-president for many years and, on Jan. 1, 1925, when he retired from private practice, he became managing director of the Society. The Newton Stock Farm, which he owned, was famous for the trotters it produced. Allie Wilkes was perhaps the best of these.

Dr. Newton was a 32nd degree Mason, a member of Zenobia Shrine, the Elks, Chamber of Commerce, the Exchange Club, Toledo Driving Club, and Trinity Episcopal Church. For many years he was a director of the Lucas County Board of Agriculture. He is survived by his widow, two sons, two daughters, a stepson, three sisters and a brother.

SAMUEL E. BENNETT

Dr. S. E. Bennett, of Chicago, Ill., died August 4, 1925, the result of injuries received in an automobile accident the evening before.

Born in East Liverpool, Ohio, December 17, 1868, Dr. Bennett was educated in the grade and high schools of his home town. His veterinary training was received at Ohio State University,

from which he was graduated in 1890, and at the Royal Veterinary College, at Hanover, Germany, where he took post-graduate work. In 1891, upon his return to the United States, he accepted the position of Professor of Veterinary Science in the Kentucky Agricultural College, at Lexington.

Dr. Bennett entered the service of the Bureau of Animal Industry on January 15, 1896. He started as assistant inspector and was stationed at Chicago. He was later transferred to Milwaukee, with the rank of inspector, and placed in charge of the force which was then engaged in the microscopic inspection of pork for export. On June 15, 1897, he was promoted to inspector-in-charge of meat inspection at Milwaukee. He soon

DR. S. E. BENNETT

attracted favorable attention as a thoroughly qualified veterinarian and executive officer and was transferred to the Kansas City station as inspector-in-charge. He remained there until October 4, 1901, when he accepted the position as inspector-in-charge of the Boston, Massachusetts, station, which was one of the most important seaboard stations. While he was at Boston, our first important outbreak of foot-and-mouth disease in the United States occurred in New England. Dr. Bennett directed the forces that successfully eradicated this outbreak. At his own request, he was returned to Kansas City as inspector-in-charge, on November 17, 1903, and two years later was placed in charge of the Chicago, Illinois, station, which was the largest and most important field station of the Bureau.

When foot-and-mouth disease again appeared in 1908, Dr. Bennett was called upon to direct the forces in Pennsylvania and Maryland. He was again successful in eradicating the disease in his territory. On April 1, 1914, owing to impaired health, he was relieved at Chicago and given charge of the hog cholera project in Indiana, which had recently been undertaken to demonstrate the proper use and value of the immunization treatment against hog cholera. When the outbreak of foot-and-mouth disease appeared in 1914, Dr. Bennett was again placed in charge of an eradication force in Illinois.

His participation in the foot-and-mouth disease campaigns of 1902, 1908, 1914 and 1924, as well as his positions as B. A. I. inspector-in-charge at Milwaukee, Boston, Kansas City and Chicago, brought Dr. Bennett in contact with thousands of veterinarians, as a result of which he enjoyed an unusually large acquaintance in the profession. It was recently stated that there were comparatively few men in the B. A. I., in 1915, when Dr. Bennett resigned, who had not served under him at some time. Upon leaving the Bureau, Dr. Bennett was appointed Superintendent of Sanitation for the Union Stock Yards and Transit Company, of Chicago. He was also president of the U. S. Standard Serum Company, of Chicago.

Although separated officially from the Federal service, he kept in close touch with the activities of the Bureau, and his advice often proved helpful in handling Bureau matters. When the outbreak of foot-and-mouth disease occurred in California, in 1924, the Union Stock Yards Company was requested to release Dr. Bennett to act in an advisory capacity to those in charge of the eradication work, as he was one of the most experienced and efficient authorities in this country in handling this highly contagious disease. He returned to his duties with the Union Stock Yards Company, October 10, 1924, and held a commission as a Bureau collaborator up to the time of his death.

Dr. Bennett was recognized as a Bureau officer of exceptional administrative ability. Energetic in action, square in his dealings, frank and fearless in his decisions, a splendid organizer and with a wonderful knowledge of human nature, he inspired the confidence and loyalty of subordinates and the respect of all those with whom he had official contact. He was a leader among men. His jovial disposition and optimism gained for him a very wide circle of friends and he will be missed not only in

veterinary circles, but by all who have had the pleasure of knowing him.

The accompanying photograph of Dr. Bennett, the only one obtainable at the time this obituary was prepared, is from a snap-shot taken by Dr. L. Enos Day, of Chicago, during the foot-and-mouth disease campaign in California, last year. It shows Dr. Bennett with his characteristic smile—the way he usually met you and the way his friends will always remember him.

Among the members of the veterinary profession who were shocked by the news of the death of Dr. Bennett, none was more deeply moved than Dean David S. White, a classmate of Dr. Bennett and now the sole survivor of the class of 1890 at Ohio State University. Dr. White has paid the following glowing tribute to Dr. Bennett:

> "In an acquaintance and companionship extending over thirty-eight years I always found him most loyal, trustworthy and absolutely reliable. While frank in criticism he was always constructive and meant to give his honest opinion straight from the shoulder without any equivocation. I found him absolutely dependable. He was one of the most conscientious men I ever knew. Although he was thrown among millionaire packers and had opportunities to receive from them large sums of money for legitimate service, he always refused to accept anything beyond a relatively small salary which the Stock Yards Company paid him. He despised crookedness, cheap politics and unearned advantage. A great admirer of Theodore Roosevelt, whom he knew personally, he was a firm believer in the doctrine of the Square Deal."

Dr. Bennett joined the A. V. M. A. in 1898. He represented District No. 3 on the Executive Board from 1918 to 1923, and was a member of the sub-committee on JOURNAL, 1920-23. He was a member of Phi Delta Theta and Alpha Psi fraternities. He leaves a widow, one daughter and one son.

H. J. SAMPSON

Dr. H. J. Sampson, of Colesburg, Iowa, died March 16, 1925, after an illness of almost a year. He was a native of Colesburg, having been born there November 17, 1873. He attended college at Charles City, Iowa, and later the McKillip Veterinary College, from which he was graduated in 1910. He joined the A. V. M. A. in 1917.

CHARLES W. FERGUSON

Dr. Charles W. Ferguson died May 16, 1925, at Tampa, Florida, after an illness of nearly six years. Dr. Ferguson was a graduate of the Chicago Veterinary College, class of 1909. He joined the A. V. M. A. in 1915, while located at Auburn, Ala., as a member of the veterinary faculty of the Alabama Polytechnic Institute.

MARRIAGES

Dr. P. C. Ballou, of Piper City, Ill., to Mrs. Emma E. Kalbe, of Chicago, Ill., June 24, 1925, at Chicago, Ill.

Dr. R. M. Hofferd (Chi. '17), of Fairfax, Iowa, to Miss Geraldine Hines, June 24, 1925.

Dr. Howard S. Buxton, of Vinton, Iowa, to Miss Mary Leona Patton, same city, July 15, 1925.

BIRTHS

To Dr. and Mrs. H. W. Tornow, of Wichita, Kans., a daughter, Suzanne Beverly, June 26, 1925.

To Dr. and Mrs. R. C. Mills, of Redfield, Iowa, a son, Milton Loche, July 30, 1925.

To Dr. and Mrs. F. B. Young, of Waukee, Iowa, a son, Frank Wilson, August 2, 1925.

To Dr. and Mrs. Maynard Kilpatrick, of New Carlisle, Ohio, a son, James Albert, August 8, 1925.

To Dr. and Mrs. H. L. Coffin, of Adair, Iowa, a daughter, Wilma Jean, August 20, 1925.

PERSONALS

Dr. Clem Pierce (Iowa '25) has located at Eldora, Iowa.

Dr. I. R. Vail (Corn. '11) has removed from New Haven to Bristol, Conn.

Dr. Paul Raymond (Corn. '25) has entered private practice at Stowe, Vt.

Dr. Robert Volgenau (Corn. '25) has joined his father in practice in Buffalo, N. Y.

Dr. G. C. Monroe (O. S. U. '22) has removed from Lenoir to Greensboro, N. C.

Dr. Amer Porter (K. S. A. C. '25) gives Fredonia, Kansas, as his new address.

Dr. F. A. Mathew (O. S. U. '25) has located for general practice at Ashland, Ill.

Dr. R. C. Julien (McK. '07) has been reappointed state veterinarian of Indiana.

Dr. W. B. Peterson (Colo. '25) has selected Burt, Iowa, as a location for practice.

Dr. C. H. Thompson (Cin. '10) is now located at 234 N. Warren Avenue, Columbus, Ohio.

Dr. Ben Anderson (Iowa '25) has removed from Worthington, Minn., to Canton, So. Dak.

Dr. H. L. Messmore (Chi. '14) is a member of the polo club recently organized at Geneseo, Ill.

Dr. C. C. Franks (Chi. '11), of Grimes, Iowa, is a breeder of Big Type Poland-China hogs.

Dr. M. Barker (Ont. '07), of Regina, sailed for Great Britain, August 22, on the S. S. Trucoman.

Dr. W. J. Gibbons (Corn. '25) is associated with Dr. David Cheney (Corn. '22), at Potsdam, N. Y.

Dr. R. V. Gibbons (Corn. '25) is located at the hospital conducted by Drs. Miller and Zepp, in New York City.

Dr. Robert C. Hill (Ont. '95), of West Alexandria, Ohio, has sold his practice to Dr. C. R. Nunn (O. S. U. '22).

Dr. James H. Harden (Corn. '23) has opened the Harden Veterinary Hospital at 195 Berry St., Brooklyn, N. Y.

Dr. J. S. Marshall (Corn. '24) is associated with Dr. Bruce Blair (U. P. '09,) at 350 Lafayette Street, New York City.

Dr. Gladys Schoenfeld (Corn. '25) is engaged in hospital laboratory work with Dr. John A. Kolmer, of Philadelphia.

Dr. G. N. Cunningham (Chi. '18) has been engaged as county veterinarian for Stephenson County (Ill.) for another year.

Dr. C. H. Atkinson (Wash. '20) has requested a change of address from Fresno, Calif, to P. O. Box 352, Oakdale, Calif.

Dr. Ralph P. Reid (Iowa '25) has entered partnership with his brother, Dr. Fred Reid (Chi. '13), at Washington, Iowa.

Dr. H. Meade Hamilton (Ind. '09), of Muncie, Ind., is interested in the breeding of English bulldogs and Boston terriers.

Dr. Joseph Troutwyler (Zurich '89) has removed from Elizabeth, N. J., to Roselle, N. J. Address: Chestnut Street near 10th Avenue.

Dr. Martin G. Smith (K. S. A. C. '08), of Bellflower, Ill., has sold his practice to Dr. G. L. Krieger (K. S. A. C. '24), of Chicago, Ill.

Dr. F. A. Scott (Ont. '05), of Traverse City, Mich., recently lost his office by fire, which destroyed his library and part of his equipment.

Dr. A. E. Erickson (Gr. Rap. '18), of Charlotte, Mich., has been appointed Live Stock Agent for Eaton County by the Board of Supervisors.

Dr. Reuben Gordon (Corn. '25) has been assisting Dr. Chas. S. Chase (N. Y.-Amer. '06) at Bay Shore, N. Y., during the past few months.

Dr. A. E. Campbell (Chi. '15), of Rantoul, Ill., sustained a heavy loss when his veterinary hospital burned down, the latter part of July.

Dr. H. M. DeVolt (Corn. '23) will be assistant to Dr. E. L. Brunett in the investigation of poultry diseases at Cornell University during the coming year.

Dr. George Alberry (Chi. '05), of Monticello, Iowa, was painfully injured in an automobile accident, July 27. His left leg was crushed below the knee.

Dr. W. F. Miller (McK. '06), of Storm Lake, Iowa, was badly injured recently when he was kicked in the head by a horse on which he was operating.

Dr. H. W. Leib (K. C. V. C. '11), of Winchester, Ill., recently gave a public demonstration of caponizing roosters and a lecture on poultry diseases at his hospital.

Dr. Wm. L. Bleecker (O. S. U. '17), of the Universtiy of Arkansas, has been taking post-graduate work the past summer, at Ohio State University, under Dr. L. W. Goss.

Dr. Fred D. Wood (U. P. '24), Resident Surgeon at the Veterinary Hospital of the University of Pennsylvania for the past year, has located at Ardmore, Pa., for general practice.

Dr. W. W. Williams (Corn. '15), of Springfield, Mass., had an article in the *Holstein-Friesian World*, of July 4, 1925, entitled, "The Herd Sire as the Cause of Abortion and Sterility."

Dr. Alfred Savage (Corn. '14), Professor of Veterinary Science at the Manitoba Agricultural College, spent a six-weeks vacation motoring through Canada. He was east as far as Montreal.

Dr. C. G. Kreidler (Cin. '13), who has been with the Board of Health of Lexington, Ky., is back with the State Live Stock Sanitary Board, with headquarters in the New Capitol Building, Frankfort, Ky.

Dr. E. L. Brunett (Corn. '23) addressed the poultry judging school, held in Ithaca, N. Y., by the College of Agriculture, July 6, 1925. His subject was: "Poultry Diseases Prevalent in New York State."

Dr. C. C. Schafer (Ont. '08-'11), who has been located at Linden, Mich., for several years and has been employed by the State for the past year, has accepted the position of City Meat Inspector of Flint, Mich.

Dr. D. A. Sanders (K. S. A. C. '23), who has been at the University of Kentucky for the past year, has accepted the position of Assistant Veterinarian at the Agricultural Experiment Station of the University of Florida, Gainesville.

Dr. Werner Runge (Berlin '79), chief veterinarian of the Bureau of Meat Inspection of the Department of Health, Newark, N. J., had an article on the recent outbreak of fowl pest, in the June number of the *Monthly Bulletin* published by the Department.

Dr. Samuel Sheldon (K. C. V. C. '96), of Trenton, and Dr. A. P. Drury (K. C. V. C. '15), of St. Genevieve, have succeeded Dr. D. B. Morgan, of Neosho, and Dr. J. L. Felix, of Maryville, respectively, as members of the Missouri State Board of Veterinary Medical Examiners.

Dr. John Ducey (Ont. '16), of Richmond, Ill., had a narrow escape from death while crossing the railroad tracks in the village. He stalled his engine in trying to get out of the way of an approaching freight train, and saved his life by leaping from his car, which was badly damaged.

Dr. John M. Hendrickson (O. S. U. '24), of the faculty of the New York State Veterinary College at Cornell University, has been stationed at the State Institute of Applied Agriculture, at Farmingdale, Long Island, to cooperate with the Institute in a study of the diseases of poultry.

Dr. Robert H. Nutt (O. S. U. '09), of Henderson, Ky., underwent an operation for inguinal hernia, at the Henderson Hospital, June 29. He returned to his post of duty as B. A. I. inspector-in-charge of meat inspection at the Henderson station, on August 4. At last reports he was feeling fine.

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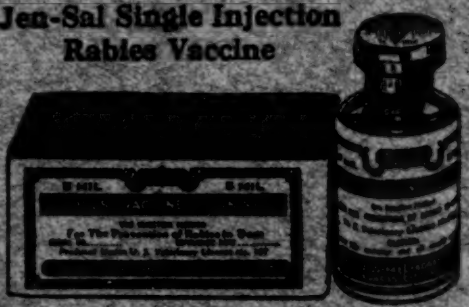

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